Repair and Support System

F4/F4s

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F4 TROUBLE DIAGNOSTIC SYSTEM

1. The difference between the Trouble Diagnostic Systems for the F-401 (N4004) and F-801 (N8008), and that for the F4 is as follows:
The usage of the F4 Trouble Diagnostic System is totally different from that of the F-401 (N4004) and the F-801 (N8008).
In the Trouble Diagnostic System for the F-401 (N4004) and the F-801 (N8008), trouble diagnostic procedures and inspections based on communications have been included in the program file on the floppy disk provided. While in the Trouble Diagnostic System for the F4, the program file on the floppy for the previous models has been divided into following two forms:

Configuration of the F4 Trouble Diagnostic System

Item	Medium	Contents
(1) F4 check flowchart	Paper material	Trouble diagnostic procedures
(2) F4 Trouble Diagnostic System	Floppy disk	Inspections based on communications: 1. Sequence errors 2. Film advance mode 3. Reading out EEPROM data 4. Exposure data 5. Checking of each motor driving 6. Block operations

2. Usage of the F4 Trouble Diagnostic System

(1) Usually you will find pertinent items from the Trouble Diagnostic Check Flowchart in the first place. The Trouble Diagnostic Program is used only when inspection based on communication between personal computer and F4 camera is carried out. Inspection based on communication between computer and camera will be explained in the Trouble Diagnostic Check Flowchart.

(2) The F4 Trouble Diagnostic System has been designed to find out the cause of trouble found in the F4 body. Accordingly, nothing has been discussed on the trouble caused by accessories (viewfinder, data back, battery pack, etc.) in this system.

For instance, when receiving F4S (MB-21 attached) camera for repair, check to see first of all if the trouble is found in the MB-21 or not. Then utilize the F4 Trouble Diagnostic System.

F4/F4S
TROUBLE DIAGNOSTIC
CHECK FLOWCHART

CONTENTS

Item	No.	Phenomenon	Page
A.		Name and location of each press contact.	A1
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G-17:	Film speed value is incorrect.	G11
G-18:	DX-coded value is incorrect.	G11
G-19:	Exposure compensation value is incorrect.	G12
G-20:	AE-L button is defective.	G12
G-21:	Always in minimum aperture value.	G13
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G-24:	Exposure value of aperture and shutter speed controls differ by 1EV or more.	G15

H. Malfunction of AF operation

H-1:	Focus aid operation is unable.(Focus indicators do not appear.)	H1
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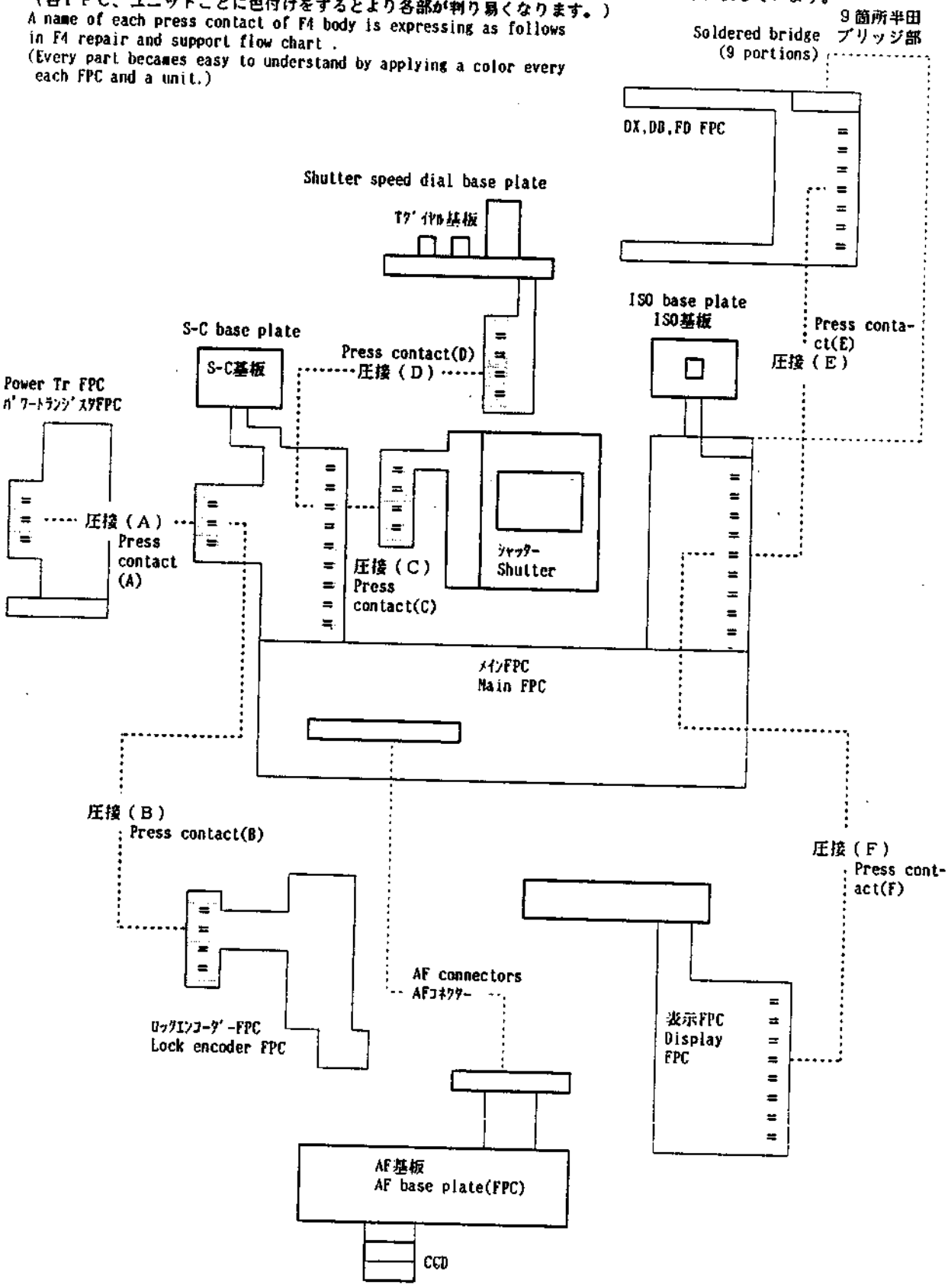
H-4:	AF lens performs scanning operation only when shutter prerelease switch is ON.	H3
H-5:	Subject is not in focus on focusing screen though in-focus indicator appears.	H4
H-6:	List of trouble due to disconnection of lens contacts (7 portions).	H5

I. Malfunction of display

I-1:	Malfunction of LCD and LED displays at body side.	I1
I-2:	Malfunction of focus indicators.	I2
I-3:	Malfunction of exposure compensation indicator.	I3
I-4:	List of trouble due to poor press contact between main FPC and display FPC.	I4

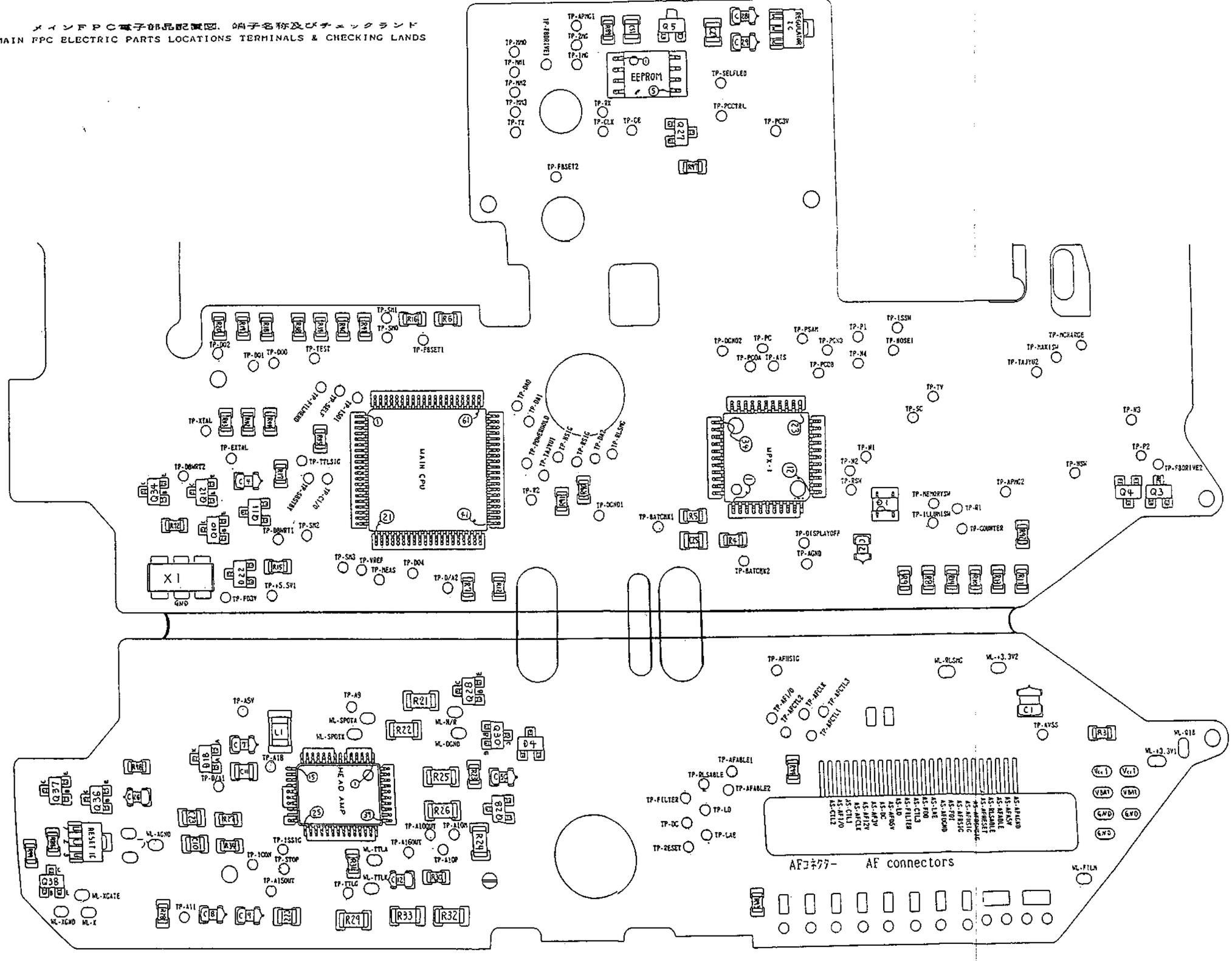
1．圧接部の名称について　Name and location of each press contact.

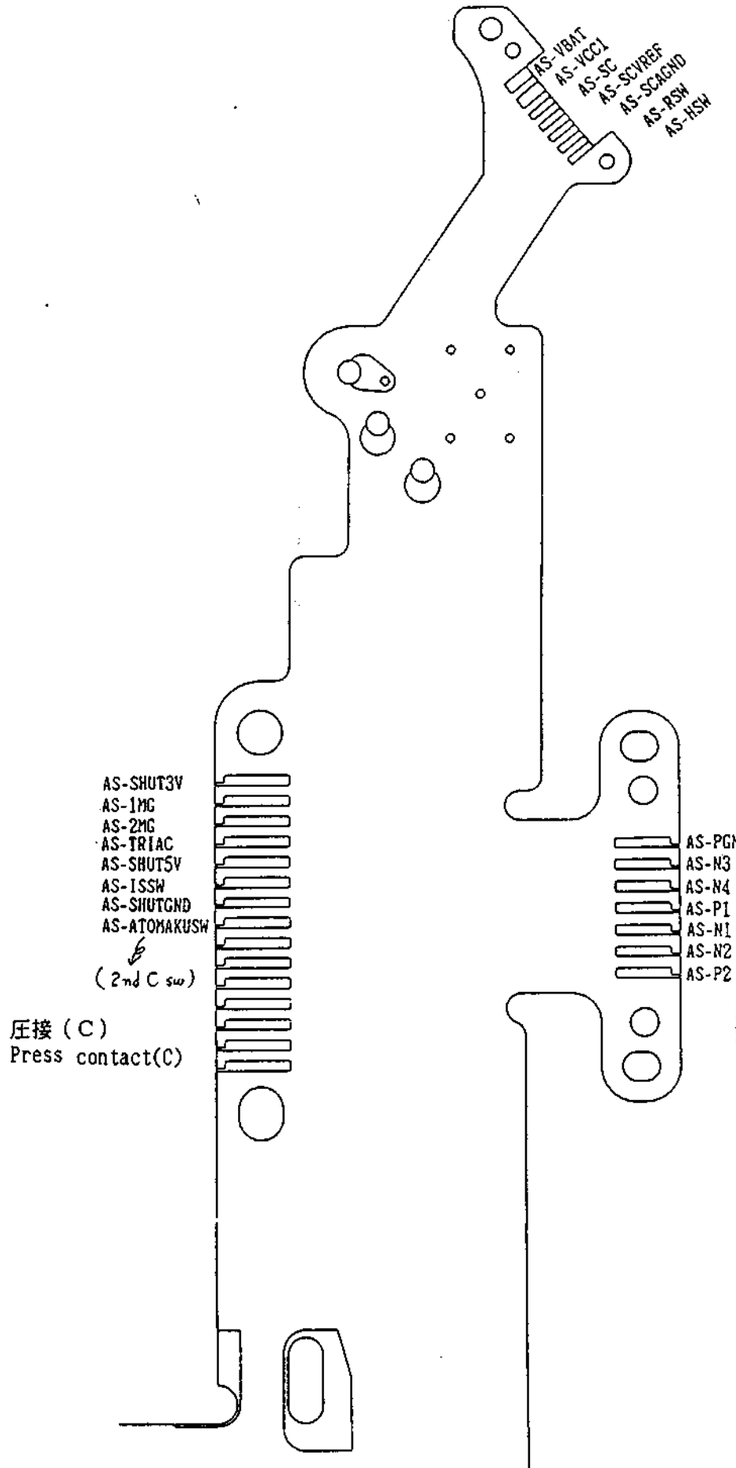
Ｆ４ボディの各圧接部の名称は、Ｆ４故障診断チェックフローチャート中では以下のように表しています。
（各ＦＰＣ、ユニットごとに色付けをするとより各部が判り易くなります。）
A name of each press contact of F4 body is expressing as follows in F4 repair and support flow chart .
(Every part becames easy to understand by applying a color every each FPC and a unit.)



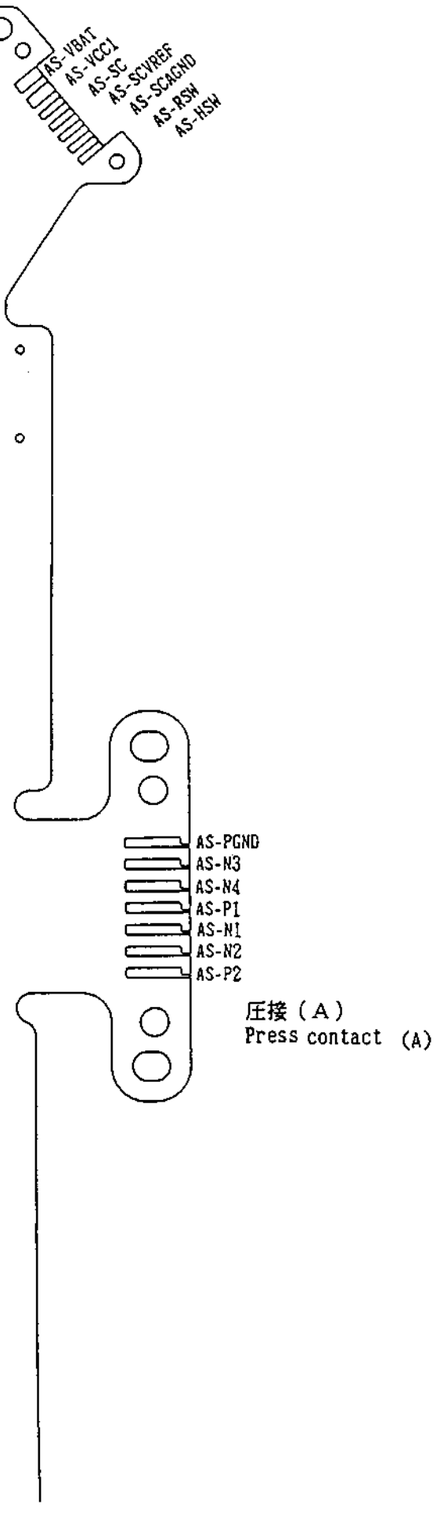
メインＦＰＣ電子部品配置図、端子名称及びチェックランド

MAIN FPC ELECTRIC PARTS LOCATIONS TERMINALS & CHECKING LANDS

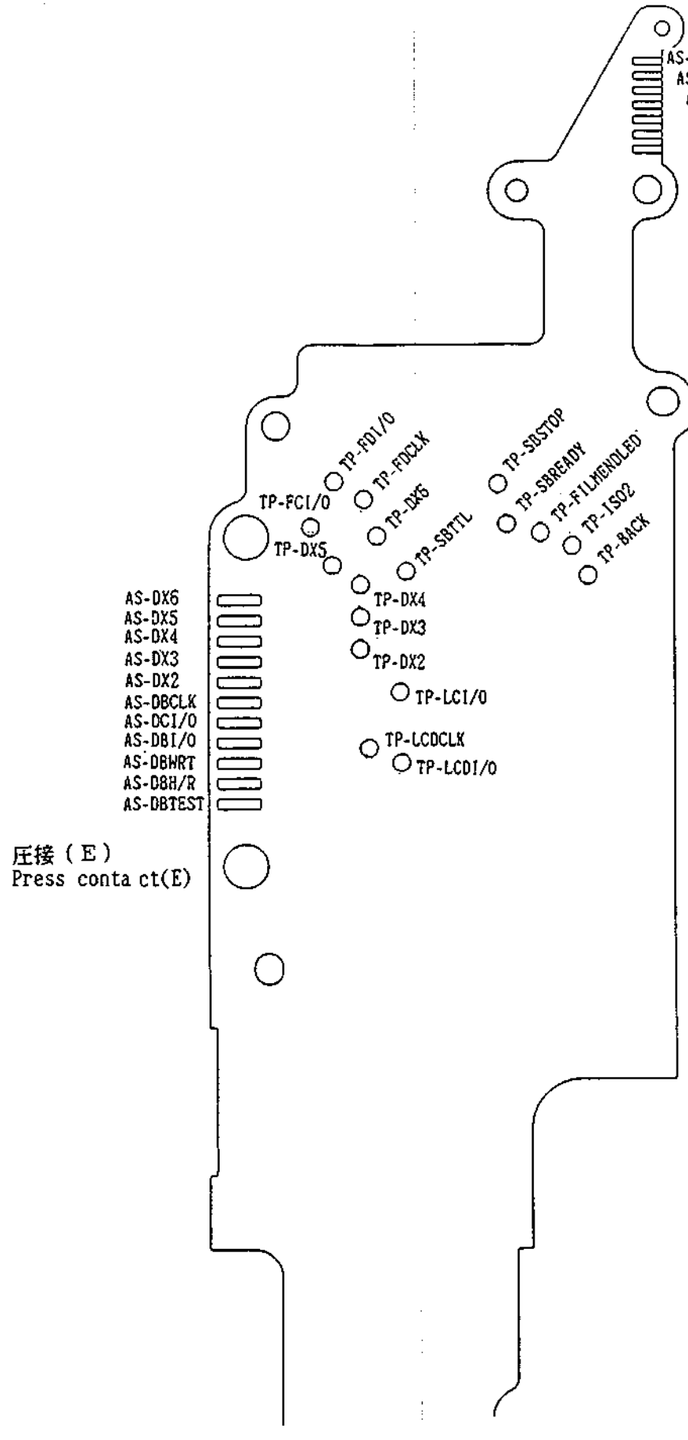




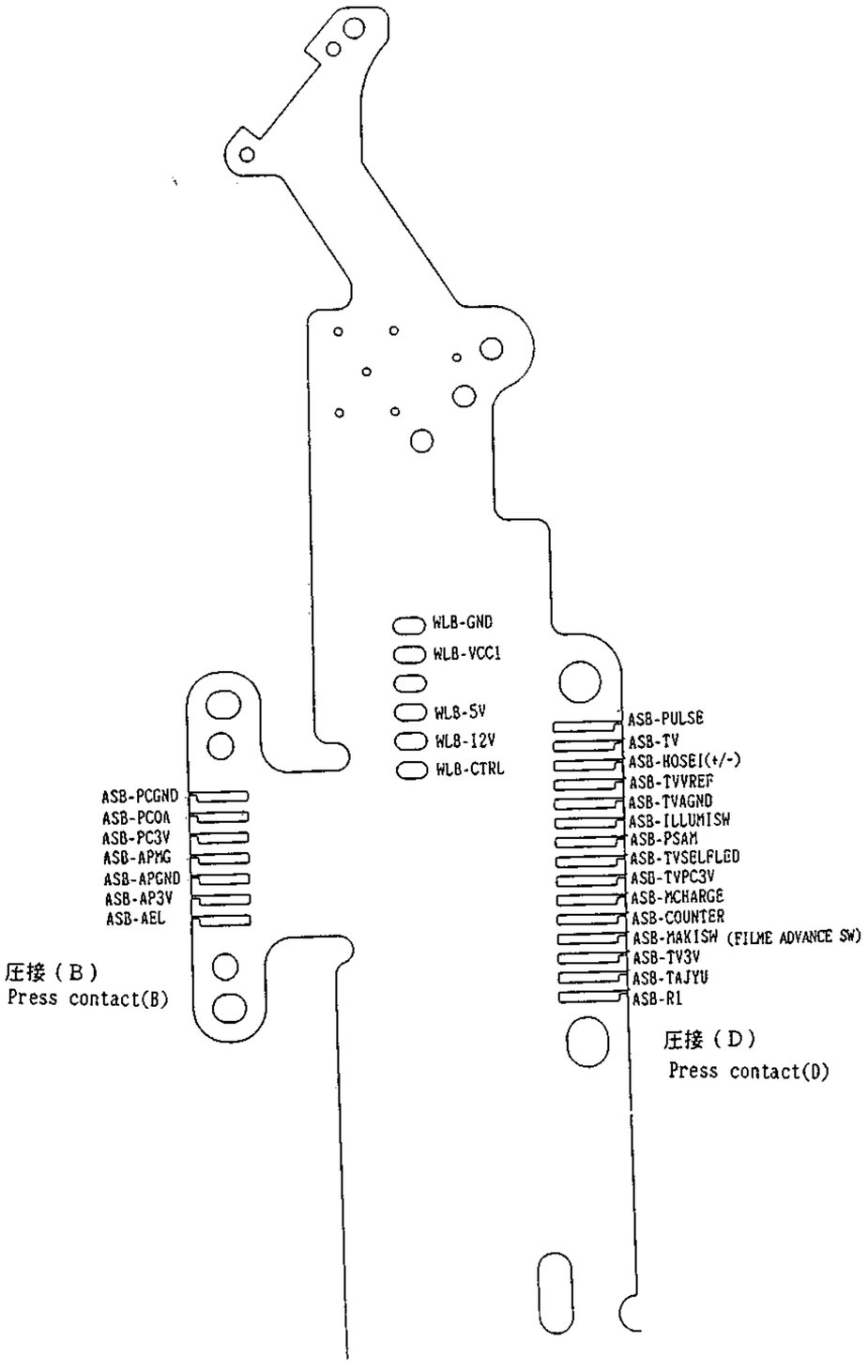
圧接（C）
Press contact(C)

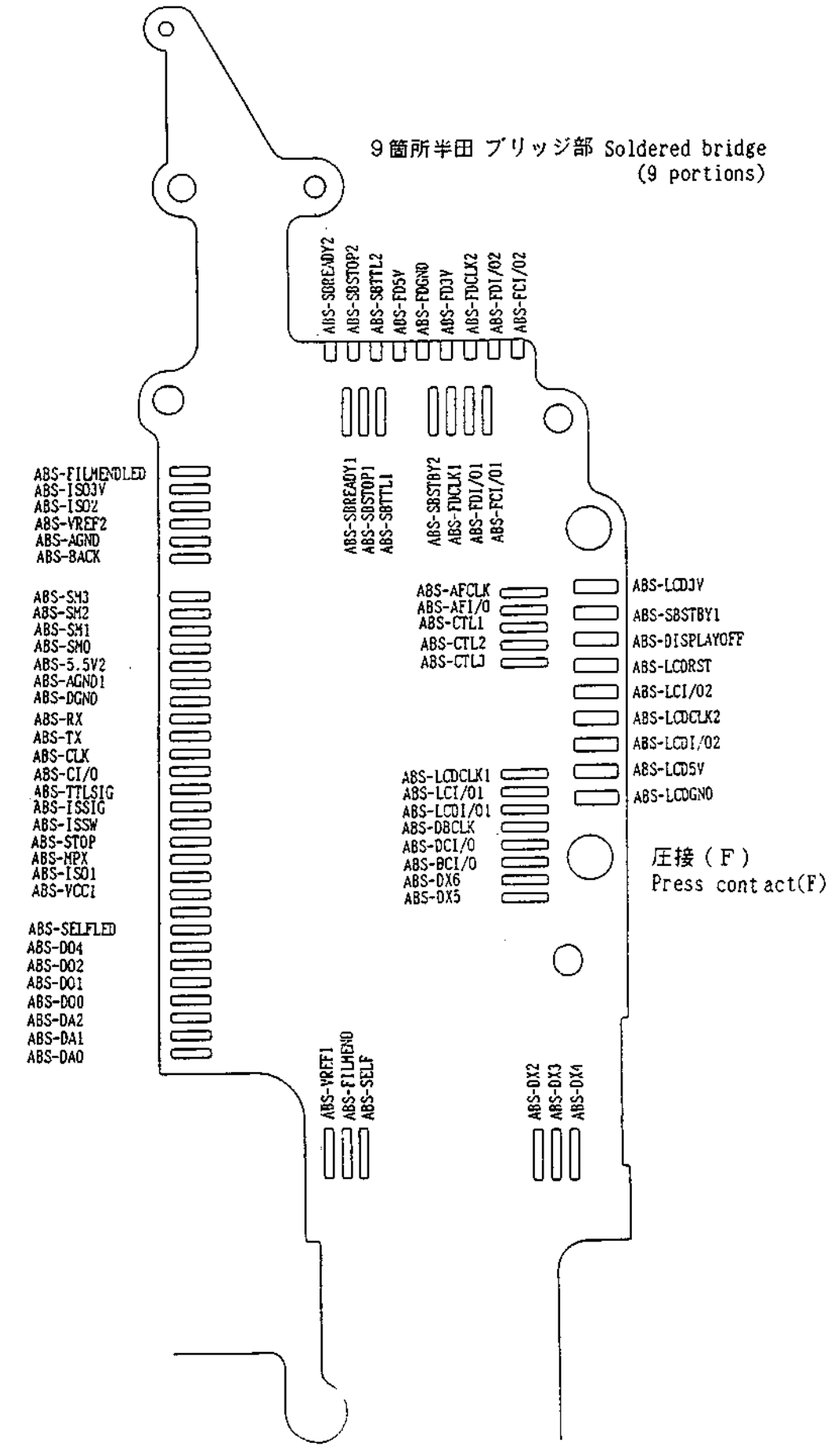


圧接（A）
Press contact (A)



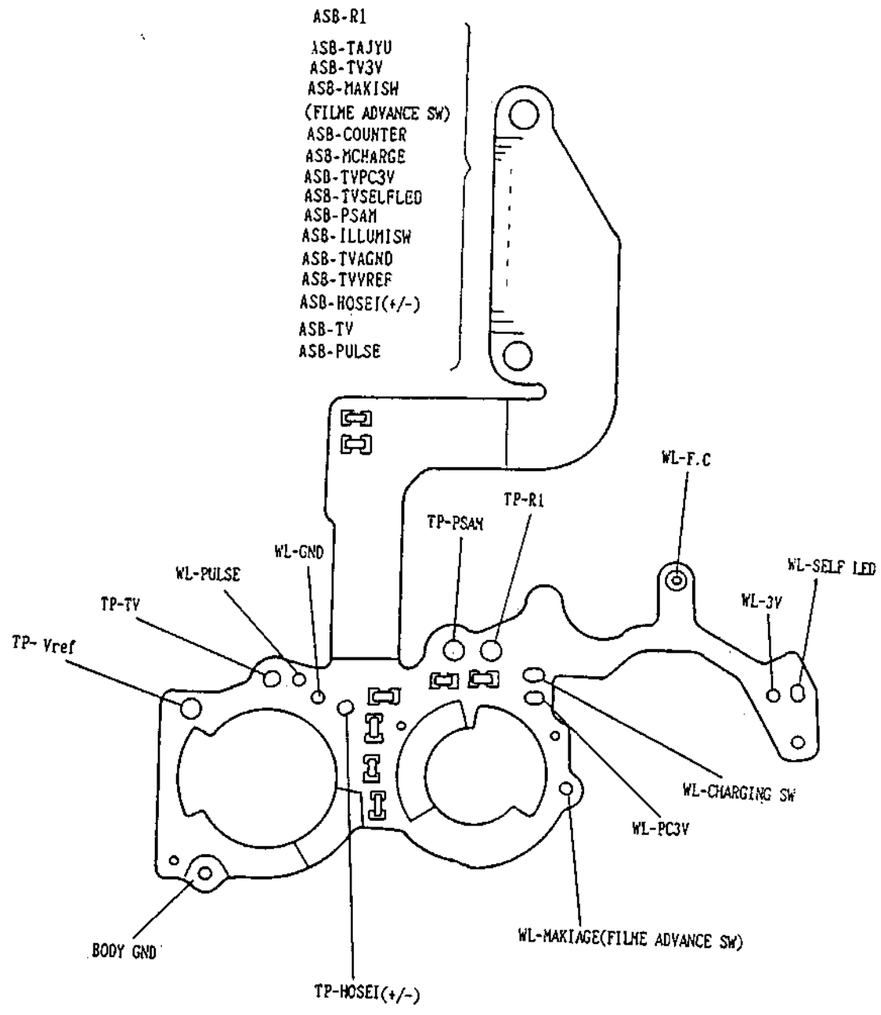
圧接（E）
Press conta ct(E)

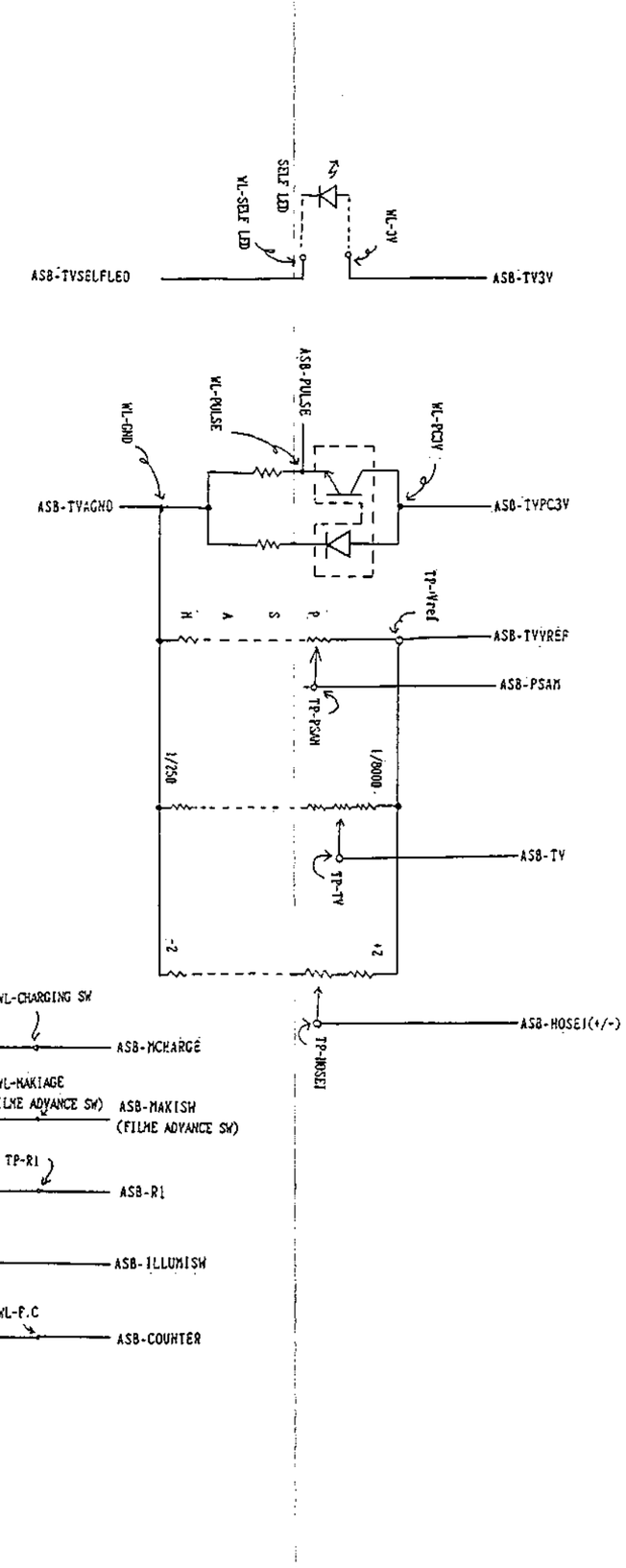

WLB-GND
WLB-VCC1
WLB-5V
WLB-12V
WLB-CTRL
ASB-PCGND
ASB-PCOA
ASB-PC3V
ASB-APMG
ASB-APGND
ASB-AP3V
ASB-AEL
圧接（B）
Press contact(B)
ASB-PULSE
ASB-TV
ASB-HOSEI(+/-)
ASB-TVVREF
ASB-TVAGND
ASB-ILLUMISW
ASB-PSAM
ASB-TVSELFLED
ASB-TVPC3V
ASB-MCHARGE
ASB-COUNTER
ASB-MAKISW (FILME ADVANCE SW)
ASB-TV3V
ASB-TAJYU
ASB-R1
圧接（D）
Press contact(D)


9箇所半田 ブリッジ部 Soldered bridge
(9 portions)
ABS-SDREADY2
ABS-SBSTOP2
ABS-SBTTL2
ABS-FD5V
ABS-FDGND
ABS-FD3V
ABS-FDCLK2
ABS-FDI/02
ABS-FCI/02
ABS-FILMENDLED
ABS-ISO3V
ABS-ISO2
ABS-VREF2
ABS-AGND
ABS-BACK
ABS-SM3
ABS-SM2
ABS-SM1
ABS-SM0
ABS-5.5V2
ABS-AGND1
ABS-DGND
ABS-RX
ABS-TX
ABS-CLK
ABS-CI/O
ABS-TTLSIG
ABS-ISSIG
ABS-ISSW
ABS-STOP
ABS-MPX
ABS-ISO1
ABS-VCC1
ABS-SELFLED
ABS-DO4
ABS-DO2
ABS-DO1
ABS-DO0
ABS-DA2
ABS-DA1
ABS-DA0
ABS-SDREADY1
ABS-SDSTOP1
ABS-SBTTL1
ABS-SBSTBY2
ABS-FDCLK1
ABS-FDI/01
ABS-FCI/01
ABS-AFCLK
ABS-AFI/O
ABS-CTL1
ABS-CTL2
ABS-CTL3
ABS-LCD3V
ABS-SBSTBY1
ABS-DISPLAYOFF
ABS-LCDRST
ABS-LCI/02
ABS-LCDCLK2
ABS-LCDI/02
ABS-LCD5V
ABS-LCDGND
ABS-LCDCLK1
ABS-LCI/01
ABS-LCDI/01
ABS-DBCLK
ABS-DCI/O
ABS-BCI/O
ABS-DX6
ABS-DX5
圧接（F）
Press contact(F)
ABS-VREF1
ABS-FILMEND
ABS-SELF
ABS-DX2
ABS-DX3
ABS-DX4

Shutter speed dial base plate FPC

Tダイヤル基板 FPC





	Phenomenon	Cause
B-1	Shutter prerelease operation does not work. (No display appears and camera does not operate when shutter prerelease switch is ON.)	1. Contamination is present in shutter prerelease switch. Soldered portion in shutter prerelease switch is detached. 2. Cord (blue) is pinched. (Short-circuit to the body) 3. Soldered portion in battery contacts is detached. 4. Contamination is present in brush of S-C dial. 5. DC-DC converter is defective. 6. Main FPC

** Check to see if there is short-circuit in the circuits by connecting a DC regulated power supply to the camera before starting trouble diagnostic operation.

[Inspection of shutter prerelease switch]
Do LCD displays appear when cable release switch is ON or STOP terminal of FD contact is short-circuited on GND?

LCD display appears. → *Soldered portion in shutter prerelease switch is detached.
*Contamination is present in shutter prerelease switch.

LCD display does not appear.

Remove bottom cover.

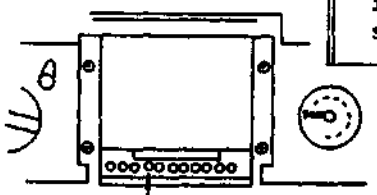
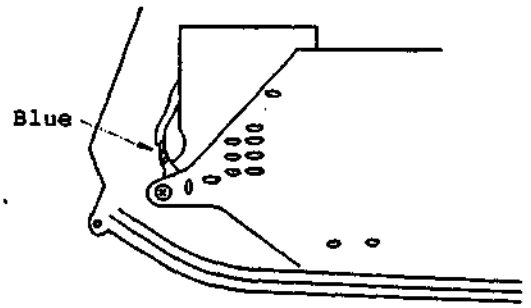


Fig. b-1-1

[Inspection of pinch of cord (blue)]
Is cord (blue) pinched?



Yes → *Blue cord is pinched.

Check to see if cord (blue) is pinched. (Blue cord: This cord is provided for battery check while mounting MB-21 on the body.)

Remove top cover at film advance side.

[Inspection of brush contacts of S-C dial]
Does LCD display appear when shutter prerelease switch is ON while pushing the S-C dial from top at the position other than L (power lock switch)?

LCD display appears. → *Contamination is present in S-C dial. Brush is detached from contacts.

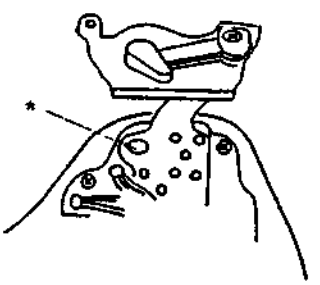
LCD display does not appear.

a

a

Raise S-C dial.

[Inspection of soldered portion of battery contacts and main FPC]
Try to solder battery contacts again.



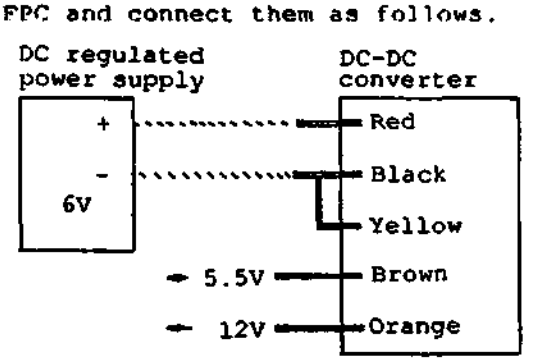
*Soldered portion of battery contacts is defective.

LCD display appears.

LCD display does not appear.

Remove front body.

[Inspection of DC-DC converter]
Remove five cords (red, black, yellow, brown, orange) of DC-DC converter from main FPC and connect them as follows.



Measure voltage of brown cord (5.5V) and orange cord (12V) with a voltmeter.

*DC-DC converter is defective.

Voltage (5.5V, 12V) is not output.

Voltage (5.5V, 12V) is output.

*Main FPC is defective.

	Phenomenon	Cause
B-2	Shutter prerelease timer is not turned OFF.	1. Short-circuit in shutter prerelease switch. 2. Short-circuit in cable release switch. 3. Short-circuit between DC-DC converter cord (yellow) and GND. 4. Main FPC is defective.

Can shutter be released in 16 seconds after shutter prerelease switch is turned ON?

Shutter cannot be released. → Remove front body.

Shutter can be released.

Yellow cord (CTRL) of DC-DC converter has been pinched (short-circuited). Check to see if the coating is not removed. Refer to Fig. b-2-1.

Abnormal → *Short-circuit between yellow cord of DC-DC converter and GND.

Normal

[Inspection of DC-DC converter start signal]
Remove yellow cord of DC-DC converter (CTRL) from main FPC, and measure voltage of the land in main FPC.
Correct value: Approx. 6V when shutter prerelease timer is OFF.
Refer to Fig. b-2-1.

Approx. 6V → *DC-DC converter is defective.

Approx. 0V → *Main FPC is defective.

a

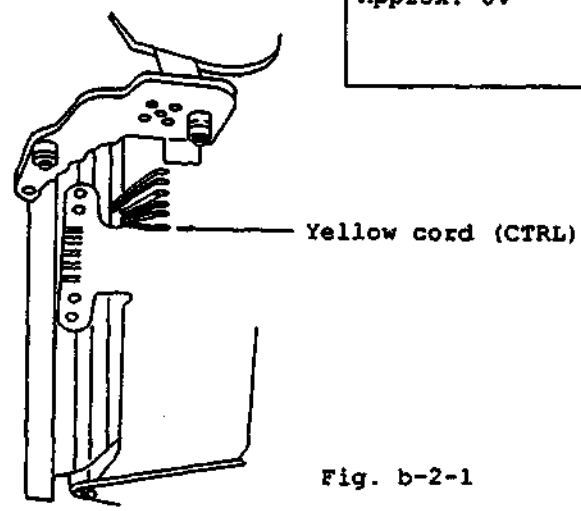


Fig. b-2-1

a

Remove bottom cover

[Inspection of cable release switch]
Remove cords (blue, and grey) of cable release switch from main FPC, and check operation of shutter prerelease timer.

Normal → *Short-circuit in cable release switch.

Abnormal

[Inspection of shutter prerelease switch]
Does camera perform AF focusing without pressing shutter release button lightly when AF mode is set in AF-C or AF-S mode?

Yes → *Short-circuit in shutter prerelease switch

No

Remove front body

[Inspection of FD/DB/DX FPC READY signal]
Remove soldered bridge of READY portion in soldered bridges (9 portions), check operation of shutter prerelease timer.
Refer to Fig. b-2-2.

Normal → *FD/DB/DX FPCs are defective.(Short-circuit between READY terminal of viewfinder contacts and GND.)

Abnormal → *Main FPC is defective.

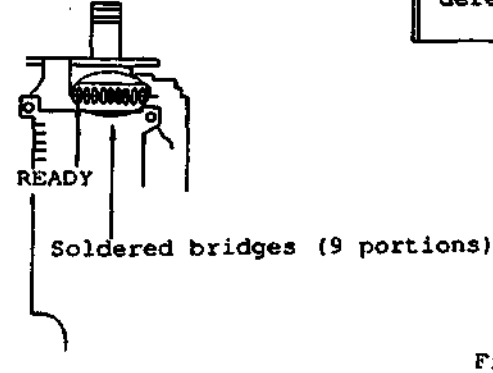
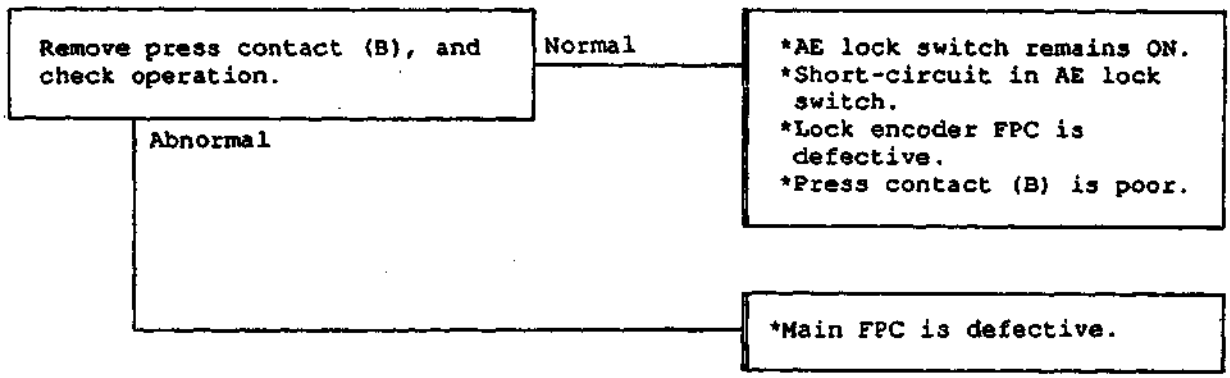
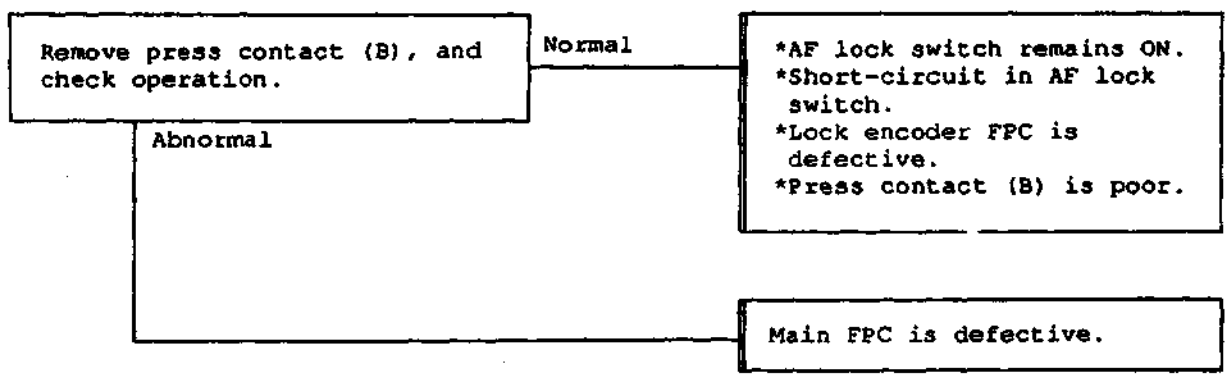


Fig. b-2-2

	Phenomenon	Cause
B-3	Shutter prerelease timer is not turned OFF. Exposure value does not change. For example: Shutter speed does not change even when the subject is in bright or dark environment if exposure mode selector is set to A and aperture dial is set to f5.6.	1. Main FPC is defective. 2. Lock encoder FPC is defective. 3. AE lock switch remains ON.


Remove press contact (B), and check operation.
Normal
*AE lock switch remains ON.
*Short-circuit in AE lock switch.
*Lock encoder FPC is defective.
*Press contact (B) is poor.
Abnormal
*Main FPC is defective.

	Phenomenon	Cause
B-4	Shutter prerelease timer is not turned OFF. Malfunction of AF indicators. For example: AF indicators does not appear in AF-S and AF-C modes, and AF indicators appear in AF-M mode.	1. Main FPC is defective. 2. Lock encoder FPC is defective. 3. AF lock switch remains ON.


Remove press contact (B), and check operation.
Normal
*AF lock switch remains ON.
*Short-circuit in AF lock switch.
*Lock encoder FPC is defective.
*Press contact (B) is poor.
Abnormal
Main FPC is defective.

	Phenomenon	Cause
B-5	Shutter prerelease timer always holds for 0 seconds.	1. Battery power for customer's camera is insufficient. (Power has been exhausted.) 2. Main FPC is defective. 3. AF base plate is defective. 4. Screw on battery contact base plate is missing.

Is screw (*) fixing battery contact base plate (beneath handgrip) detached? What about the fastening condition of the screw? Refer to Fig. b-5-1.

No → *Screws (*) (x2) fixing battery contact base plate are grounded to the body (front and back body) of main FPC.

Yes

Remove AF connector. Does shutter prerelease timer hold for 16 seconds?

Yes, it holds for 16 seconds. → *AF base plate is defective. (Temperature sensor is defective.)

*Temperature sensor output can be detected by "Inspection of each switch" in F4 Adjustment Program.

It does not hold for 16 seconds. → *Main FPC

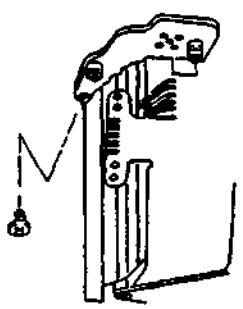


Fig. b-5-1

	Phenomenon	Cause
B-6	Shutter can be released when shutter prerelease switch is ON.	1. Short-circuit between shutter prerelease switch and shutter release switch.

	Phenomenon	Cause
B-7	Shutter can be released continuously when shutter prerelease switch is ON. (Shutter curtain does not open, film is not advanced.)	1. Shutter release Mg. mechanism does not work properly or shutter release Mg. is defective. 2. Malfunction of shutter release vertical shaft operation. 3. Malfunction of shutter release mechanism on film advance base plate. 4. Main FPC is defective.

	Phenomenon	Cause
C-1	Shutter cannot be released.	1. Trouble due to abnormal operation found in other items. 2. Main FPC is defective.

[Inspection of power Tr. (3.3V line)]
Does alert LED light up when film rewind lever (R2) is set to film rewind mode?

It does not blink.

*Power Tr. Q1 (1B990-392) is defective.
*Poor soldering of cord of power Tr. Q1.
Refer to Fig. c-1-1.
*Main FPC is defective.

It blinks.

Is AF operation normal?

Abnormal → H-1: Go to "Malfunction of AF operation". Refer to Page H1.

Normal

Does camera go into sequence error after shutter is released?

Yes → D-1: Go to "Malfunction of sequence operation". Refer to Page D1.

No

Shutter cannot be released.

Can shutter be released correctly after film is loaded in auto film loading mode?

→ E-1: Go to "Malfunction of film advance operation". Refer to Page E1.

Shutter can be released.

Can shutter be released using a cable release terminal?

Yes

*Poor contact of shutter release switch
*Disconnection of shutter release switch

No

*Main FPC is defective.

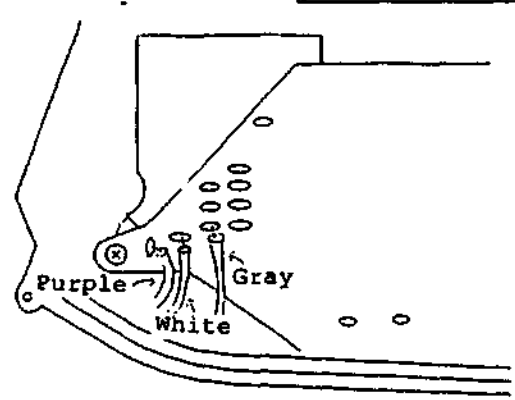


Fig. c-1-1

	Phenomenon	Cause
C-2	Shutter cannot be released when film is not loaded and camera back is closed. Alert LED lights up (film advance error) and generates rattling sound (when shutter is released. Both shutter release and film advance operations work properly when camera back is closed and film is loaded. But if film rewind operation is performed, film rewind operation remains not to stop.	1. Film detection switch is open.

	Phenomenon	Cause
C-3	Shutter can be released while camera back is open.	1. Camera back remains opened. 2. Frame counter switch remains OFF. (LCD frame count does not return to 0.)

	Phenomenon	Cause
C-4	Shutter is released when power (battery) is turned ON.	1. Short-circuit between gray cord of cable release switch and GND. 2. Short-circuit between shutter release switch and GND.

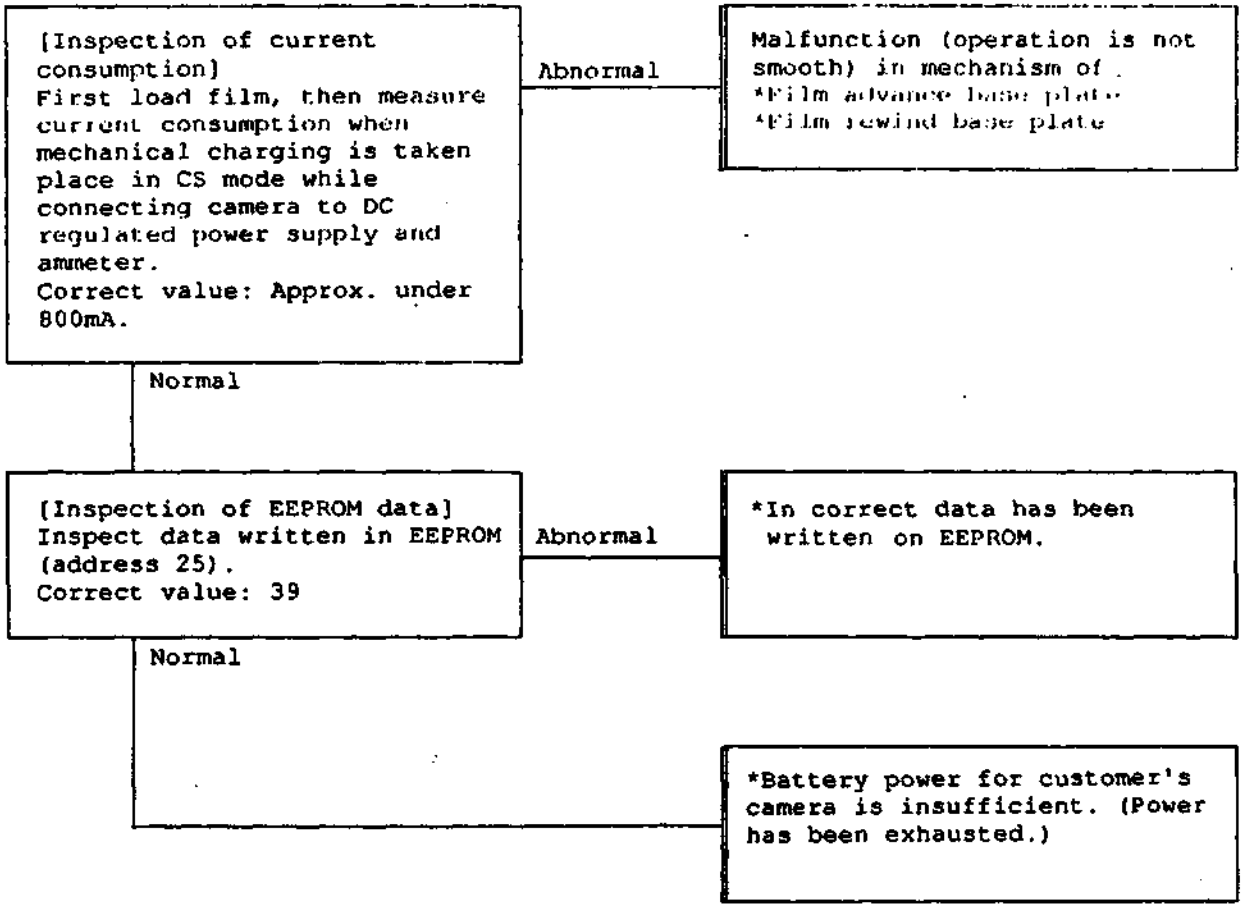
The following are actual phenomenon of trouble attributable to above two causes.

(1) Film advance and shutter release.
Film advance modes:
In CH, CL or CS mode, shutter release operation goes on continuously in each mode when power is switched ON. (Shutter release operation does not stop.) In S or self-timer mode, shutter is released once in each mode. Following shutter release operation cannot be performed unless power is turned OFF once.
Auto film loading: Shutter cannot be released after film is loaded using auto film loading mode. Turn power OFF once to perform the above mentioned operation.
(2) Shutter control: Normal
(3) Shutter prerelease timer: It does not turn OFF.

	Phenomenon	Cause
D-1	Sequence error	You can perform Trouble Diagnostic operation in either one of the following two methods. 1. You can check sequence error by using Trouble Diagnostic Program and find out the cause of the trouble. 2. Read out values written in EEPROM (address 30) using adjustment program and proceed trouble diagnostic operation by referring the contents to be mentioned in the following pages.

**Be sure to rewrite the data written in EEPROM (address 30) to "0" before you return camera to customer.

	Phenomenon	Cause
D-1-1	Voltage of DC-DC converter is lower than guaranteed value. EEPROM (30) -> ERROR DATA (128)	1. Battery power for customer's camera is insufficient. (Power has been exhausted.) 2. Film advance and rewind mechanisms do not work properly.


[Inspection of current consumption]
First load film, then measure current consumption when mechanical charging is taken place in CS mode while connecting camera to DC regulated power supply and ammeter.
Correct value: Approx. under 800mA.
Abnormal
Malfunction (operation is not smooth) in mechanism of
*Film advance base plate
*Film rewind base plate
Normal
[Inspection of EEPROM data]
Inspect data written in EEPROM (address 25).
Correct value: 39
Abnormal
*In correct data has been written on EEPROM.
Normal
*Battery power for customer's camera is insufficient. (Power has been exhausted.)

	Phenomenon	Cause
D-1-2	Sequence error of rear shutter curtain. EEPROM (30) -> ERROR DATA (64). *Sequence error warning appears. (Alert LED blinks.)	1. Poor contact of press contact (D) 2. Shutter is defective. 3. Shutter release Mg. is defective. 4. Main FPC is defective.

Note: Rear curtain and mechanical charging switches are inserted in parallel to circuit.

Can shutter be released?

Shutter cannot be released.

[Inspection of shutter release Mg. signal] Connect LED or shutter release Mg. to WL-RLSMG and WL-3.3V2 to inspect.

No good

*Main FPC is defective.

Shutter can be released.

Good

*Shutter release Mg. is defective.
*Shutter release Mg. mechanism does not work properly.

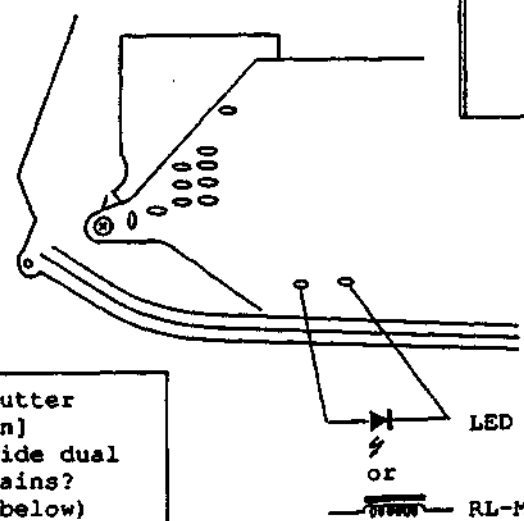
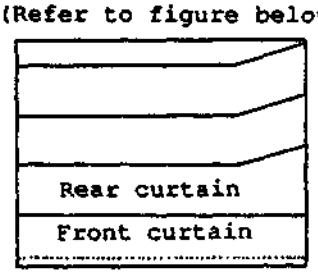


Fig. d-1-1

[Inspection of shutter charging condition] Does shutter provide dual multi-bladed curtains? (Refer to figure below)

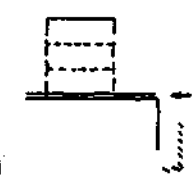


Shutter curtain viewed from aperture side.

No

*T (time) lever on shutter dial base plate is set incorrectly.

Shutter speed dial



T (time) lever at shutter unit side.

Normal latched state is shown in the above figure.

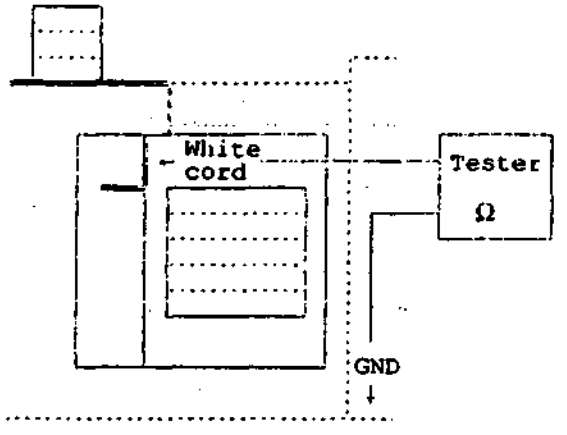
Yes

a

a

Remove front body

[Inspection of rear curtain switch]
Is rear curtain switch turned ON after rear curtain moves when shutter is released?
Correct value: Rear curtain goes -> Rear curtain switch is ON.



Note: Be sure to set shutter speed dial to "T" when releasing shutter.

It is not turned ON.

*Shutter unit is defective.

**You can make inspection of [Inspection of rear curtain switch] at the "Inspection of block operation" in Adjustment program or F4 Trouble Diagnostic program. (Mechanical charging switch = Rear curtain switch.)

It is turned ON.

Clean press contact (D), and check operation of rear curtain switch using personal computer, or check sequence operation when shutter is released after setting shutter to the "charging state."

Good

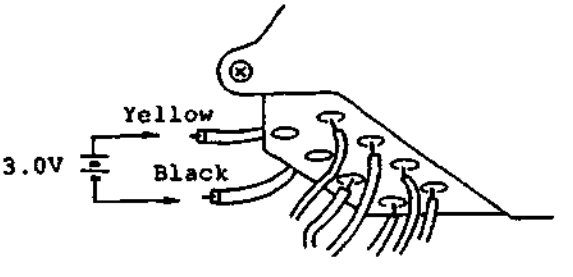
*Poor contact of press contact (D)

No good

*Main FPC is defective.

How to set shutter to "charging state."
Method 1: Rotate the charging cam up to charging completion positon by raising shutter speed dial base plate after removing screws.

Method 2: Apply 3V power on mechanical charging motor (yellow, black cords).



	Phenomenon	Cause
D-1-3	Main CPU hang-up. (Microprocessor is dead.) EEPROM (30) -> ERROR DATA(32).	No cause of this trouble is known since this trouble has ever been occurred by now. Send Nikon detailed report on customer's specifics such as: *Location of shooting, *Type of film loaded, *Type of battery installed, *Accessories used, *Environment when trouble occurred (ex. in shutter release operation, in film advance or film rewinding operation, and others).

	Phenomenon	Cause
D-1-4	Mechanical charging error. EEPROM (30) -> ERROR DATA (8). *Sequence error warning appears.(Alert LED blinks)	1. Mechanism in film advance base plate is defective. 2. Poor press contact (A) 3. Power transistor FPC is defective. 4. Main FPC is defective.

Is motor rotating sound audible after shutter is released?

Yes → *Calking of gear in film advance base plate is detached.
*Foreign matter is present in film advance base plate.

No

Clean press contact (A), and check mechanical charging operation.

Operation is normal. → *Poor contact of press contact (A).

Operation is abnormal.

[Inspection of mechanical charging operation]
Remove mechanical charging motor cords (yellow and black) and apply power (3.0V), and check to see if mechanical charging motor operates. Refer to Fig. d-1-2.

It does not operate. → *Motor is defective.
*Foreign matter is present in film advance base plate.

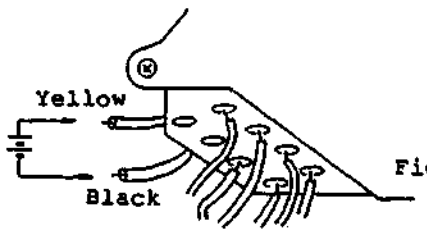


Fig. d-1-2

Motor operates.

[Inspection of power transistor FPC]
Does mechanical charging motor operate when AS-P1 is short-circuited to GND? Refer to Fig. d-1-3.

It does not operate. → *Power transistor FPC is defective.

It operates.

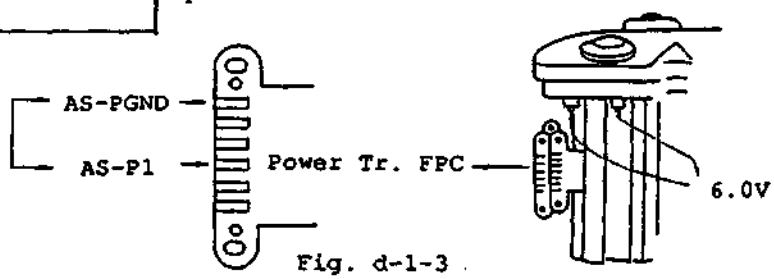


Fig. d-1-3

*Main FPC is defective.

	Phenomenon	Cause
D-1-5	X close error. EEPROM (30) -> ERROR DATA (4) *Sequence error warning appears. (Alert LED blinks.)	1. Shutter unit is defective.

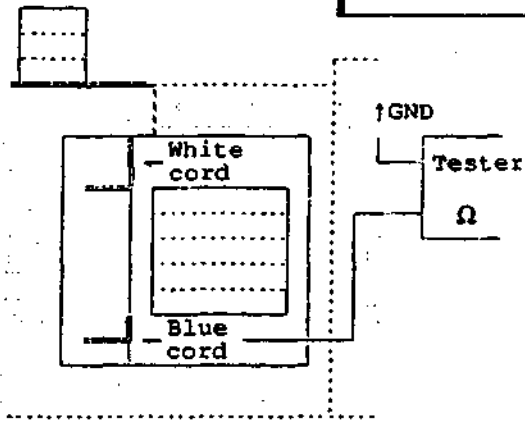
Note: X close error does not occur with back body alone. (Data cannot be written in EEPROM.)

Remove front body.

[Inspection of sync contact of shutter]
Check to see if sync contact (blue cord) is turned ON when shutter is released at "B (bulb)". Refer to Fig. d-1-3.

It is not turned ON.

*Shutter is defective.



It is turned ON.

*Main FPC is defective.
*Poor contact of press contact (C).

	Phenomenon	Cause
D-1-6	No expected aperture pulse is output. EEPROM (30) -> ERROR DATA (2) *Sequence error warning does not appear.	1. Aperture P.I gear spring tension is insufficient. 2. Poor contact of press contact (B). 3. Poor soldering of aperture P.I. 4. Aperture P.I. is defective. 5. Mechanical operation of mirror box I base plate is improper. 6. 3.4 lever (aperture lever) is bent.

	Phenomenon	Cause
D-1-7	Aperture stop down error. EEPROM (30) -> ERROR DATA (1) *Sequence error warning appears. (Alert LED blinks.)	1. Aperture P.I. gear spring tension is insufficient. 2. Poor soldering of aperture P.I. 3. Mechanical operation of mirror box I base plate is improper.

	Phenomenon	Cause
D-2	Mirror does not move up completely. Shutter curtain does not open. Camera goes into sequence error. Rear curtain sequence error EEPROM (30) -> 64	1. Poor contact of press contact (D). 2. Charging switch is not turned ON. 3. Disconnection of shutter speed dial FPC. 4. Main FPC is defective.

Remove top cover at film advance side.

[Inspection of charging switch]
Check to see if mechanical charging operation stops or not when shutter prerelease switch is ON and land of charging switch cord (gray) is short-circuited to GND. Refer to Fig. d-2-1.

It does not stop. → *Charging switch is not turned ON. Contamination is present. Soldered portion is detached.

It stops.

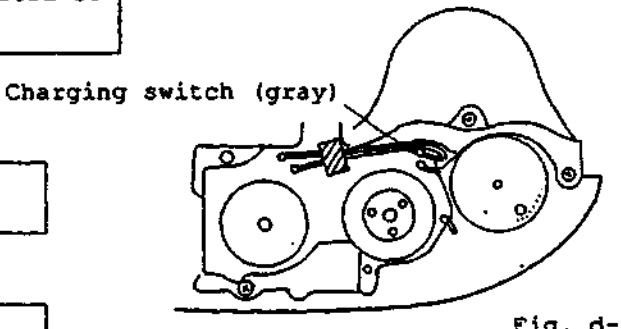


Fig. d-2-1

Remove front body.

[Inspection of press contact (D), main FPC]
Clean press contact (D), and check operation after reassembling.

Operation is normal. → *Poor contact of press contact (D).

Operation is abnormal.

[Inspection of shutter speed dial FPC]
Check continuity of charging switch line. Refer to Fig. d-2-2.

No continuity. → *Disconnection of shutter speed dial FPC

Continuity

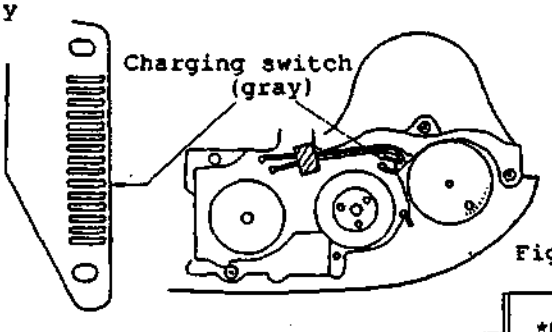


Fig. d-2-2

*Main FPC is defective.

	Phenomenon	Cause
D-3	Mechanical charging does not stop. (Mirror does not move, shutter does not open.	1. Charging switch is defective. 2. Shutter is defective. 3. Mechanical operation of film advance base plate is improper. 4. Power transistor FPC is defective. 5. Main FPC is defective.

Is mechanical charging carried out immediately after battery is installed, or is mechanical charging carried out when shutter prerelease switch is ON?

Mechanical charging is carried out when battery is installed.

[Inspection of power transistor FPC] Remove press contact (A), and check operation.

Mechanical charging is carried out.

*Power transistor FPC is defective.

Mechanical charging is carried out when shutter prerelease switch is ON.

Mechanical charging is not carried out.

[Inspection of press contact (A), main FPC] Clean press contact (A), and check operation after reassembling.

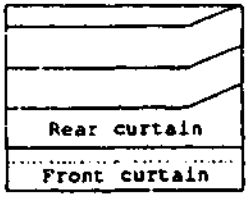
Operation is normal.

*Poor press contact (A). Short-circuit due to present of foreign matter.

Mechanical charging is carried out.

Main FPC is defective.

[Inspection of shutter charging condition] Is shutter curtain in the state that shutter charging is completed? (Dual curtains)



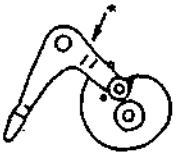
Shutter viewed from aperture side.

Charging is not completed.

Charging is completed.

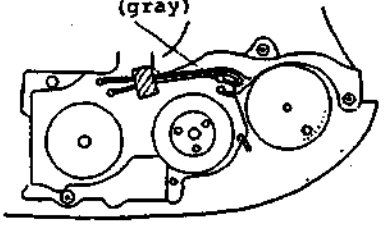
Rear curtain moves up and down in several millimeters during continuous mechanical charging operation when either shutter charging is completed (dual curtains) or shutter charging is not completed (rear curtain remains down fully).

*Film advance base plate Shutter charging lever is defective.



Remove top cover at film advance side.

Charging switch (gray)



*Film advance mechanism unit is defective.

[Inspection of charging switch] Remove gray cord(charging switch), and check operation. Fig.d-3-1.

Operation is normal.

*Short-circuit of charging switch.
*Soldering waist is present in charging switch.

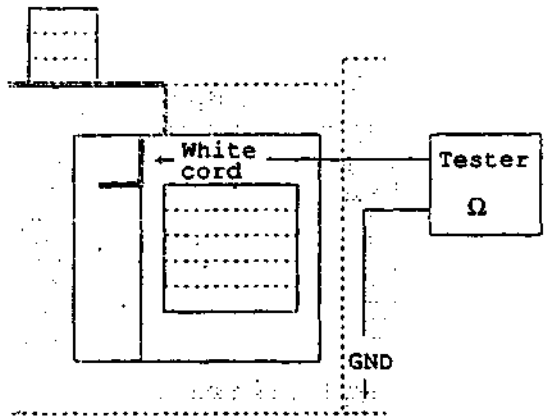
Mechanical charging is activated when shutter prerelease switch is ON.

a

a

Remove front body.

[Inspection of rear curtain switch]
Shutter charging should have been completed.
Remove press contact(C), and check rear curtain switch (white cord).
Correct value: Shutter charging is completed -> Infinitive resistance (rear curtain switch is OFF).



Note: Be sure to set shutter speed dial to "T" when releasing shutter.

*Shutter is defective. (short-circuit of rear curtain switch)

Abnormal 0Ω (rear curtain switch is ON)

Normal

[Inspection of press contact (C), main FPC] Clean press contact (C), and check operation after reassembling.

Operation is normal.

*Poor contact of press contact (C).
Short-circuit due to presence of foreign matter.

Continuous mechanical charging is activated when shutter prerelease switch is ON.

*Main FPC is defective.

	Phenomenon	Cause
D-4	AF filter remains operating when shutter prerelease switch is ON or film rewind motor remains operating.	1. Film rewind vertical shaft gear is damaged. 2. Operation of AF filter change over driving base plate is improper. 3. Poor contact of AF filter switch. 4. Poor contact of AF connecter. 5. AF base plate is defective.

Can either AF filter operating sound or film rewind motor operating sound be heard?

Film rewind motor operating sound.

[Inspection of film rewind motor control] Set R1 lever and press film detection switch. Does film rewind fork rotate when R2 lever is set at film rewind side?

It does not rotate. → *Film rewind vertical shaft gear is damaged.

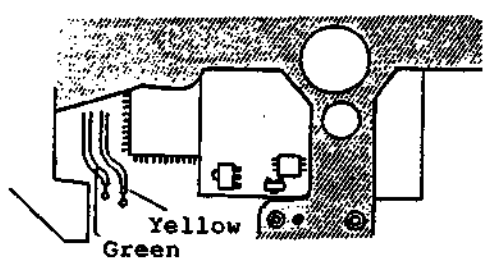
It rotates. → *Short-circuit between FD1 and GND in AF connector.

AF filter operating sound.

Remove bottom cover.

[Inspection of AF filter switch]
Is AF filter switch cords (yellow and green) switched over properly when AF filter switching lever is moved toward arrow "a" and "b"?
(Table) Normal

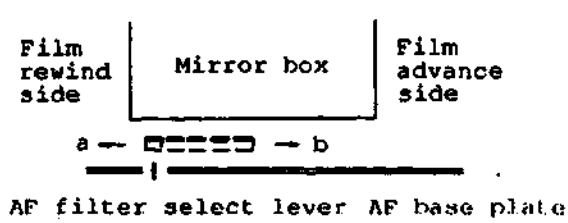
	"a" direction (AF filter)	"b" direction (general filter)
Yellow cord	0 Ω	Infinity
Green cord	Infinity	0 Ω



You can see AF base plate (yellow, green cords) when bottom main FPC is raised.

Abnormal →
*Malfunction of AF filter driving base plate
*Poor contact of AF filter switch. Switch ON stroke is defective and switch is contaminate.

Inspection of AF filter driving base plate (correct one): When you remove front body and push AF filter select lever lightly with tweezers, the AF filter select lever slides by itself due to tension of spring built-in AF filter driving base plate.



Normal

Clean AF connector, check operation after reassembling.

Operation is normal. → *Poor contact of AF connector.

Operation is abnormal. → *AF base plate is defective.

	Phenomenon	Cause
D-5	Operation stops when mirror moves up. Shutter prerelease switch cannot be turned ON afterward (or power cannot be ON).	1. Oscillator is defective.(8MHz oscillator for main CPU)

	Phenomenon	Cause
E-1	Preliminary film advance does not work.	1. Poor contact of frame counter switch 2. Poor contact of camera back switch

[Inspection of frame counter switch] (Phenomenon occurred when frame counter switch is open.)
Ordinary shutter release operation and film advance operation are carried out normally, through preliminary film advance and auto film loading operations do not work. But frame counter in viewfinder does not return to "0" when camera back is opened after film rewind operation is completed. When shutter prerelease switch is turned ON after pushing film detection lever while camera back is open, a spool rotates for approx. one second and alert LED (End of roll indicator) lights up. (Film advance error.)

Yes → *Frame counter switch is open.

No

[Inspection of camera back switch] (Phenomenon occurred when camera back is open.)
Shutter can be released while camera back is open.
When shutter release switch is turned ON after pushing film detection lever while camera back is open, alert LED (end of roll indicator) lights up generating mechanical charging sound. (Film advance error.)

Yes → *Camera back switch is open.

No → E-4 Spoor motor does not rotate. Refer to page E3.

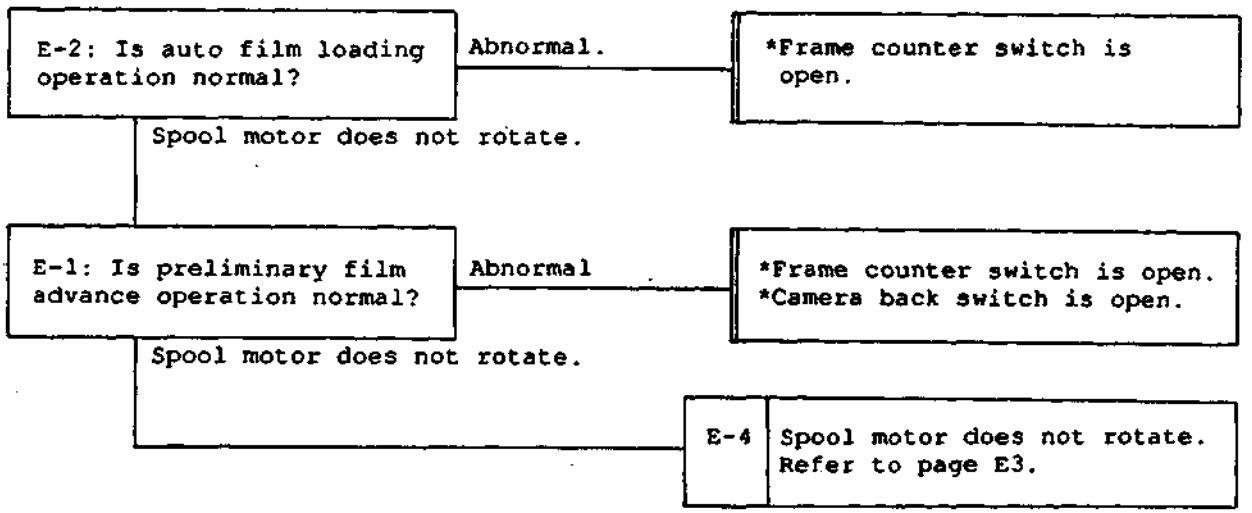
	Phenomenon	Cause
E-2	Auto film loading does not work.	1. Poor contact of frame counter switch.

[Inspection of frame counter switch] (Phenomenon occurred when frame counter switch is open.)
Ordinary shutter release operation and film advance operation are carried out normally, though preliminary film advance and auto film loading operations do not work. But frame counter in viewfinder does not return to "0" when camera back is opened after film rewind operation is completed. When shutter prerelease switch is turned ON after pushing film detection lever while camera back is open, a spool rotates for approx. one second and alert LED (end of roll indicator) lights up. (Film advance error.)

Yes → *Frame counter switch is open.

No → E-4 Spool motor does not rotate. Refer to page E3.

	Phenomenon	Cause
E-3	Film advance error. (End of roll indicator (red LED) lights up.)	1. Poor contact of frame counter switch. 2. Poor contact of camera back switch.


E-2: Is auto film loading operation normal?
Abnormal.
*Frame counter switch is open.
Spool motor does not rotate.
E-1: Is preliminary film advance operation normal?
Abnormal
*Frame counter switch is open.
*Camera back switch is open.
Spool motor does not rotate.
E-4
Spool motor does not rotate.
Refer to page E3.

	Phenomenon	Cause
E-4	Spool motor does not rotate.	1. Poor contact of AF connector. 2. Poor contact of film advance completion switch. 3. Poor contact of press contact (D) 4. Power transistor FPC is defective. 5. Main FPC is defective. 6. AF FPC is defective.

Make inspection in the order of [A:*] ~ [D:***] in case of the trouble "Spool motor does not rotate."

[A: Inspection of AF connector]

Remove bottom cover

[Inspection of AF connector]
Clean AF connector, and check operation after reassembling.

Operation is normal.

*Poor contact of AF connector.

[B: Inspection of film advance completion switch]

[Inspection of film advance completion switch]
*With a personal computer: it is possible to ON/OFF inspection of film advance completion switch using adjustment program.

[Inspection of film advance completion switch]
Measure voltage of resister (R7) by rotating sprocket with your finger while shutter prerelease timer is activated. Refer to Fig. e-4-1.
Correct value:
0V (when sprocket is rotating)
5.5V (when sprocket is locked.)

Always 0V. → *Short-circuit of film advance completion switch.

Small voltage difference. → *Main FPC is defective.

For example:
1.3V
0V

Always 5V.

Remove top cover at film advance side.

Check white cord of film advance completion switch or check contacts of film advance completion switch.

Abnormal → *White cord of film advance completion switch is detached.
*Contacts of film advance completion switch is defective.
*Shutter speed dial FPC is defective.

Normal → *Poor contact of press contact (D).

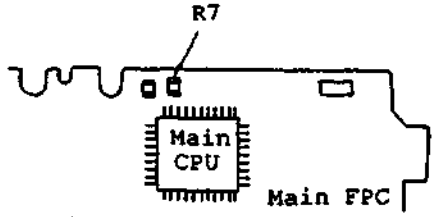


Fig. e-4-1

[C: Inspection of power transistor FPC, spool motor]

[Inspection of press contact (A)]
Remove press contact cover at film advance side, and check operation after cleaning press contact (A).

Normal → *Poor contact of press contact (A)

Abnormal

AS-PGND
AS-P2
Power Tr FPC

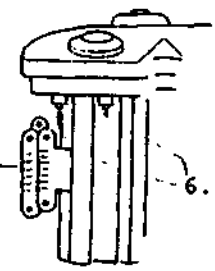


Fig. e-4-2

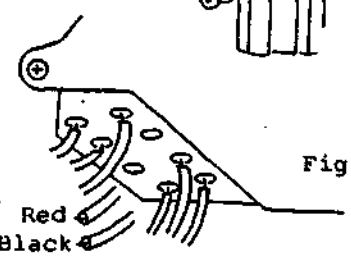


Fig. e-4-3

[Inspection of power transistor FPC]
Remove press contact (A), and check to see if spool motor rotates when P2 of power transistor FPC is short-circuited on GND.
Refer to Fig. e-4-2.

It does not rotate.

[Inspection of spool motor]
Supply power directly to cords (red and black) of spool motor, and check to see if the spool motor rotates. Refer to Fig. e-4-3.

*Spool motor is defective.
*Spool motor mechanism is defective.

It does not rotate.

It rotates. → Power transistor FPC is defective.

[D: Inspection of Film detection switch]

[Inspection of film detection switch]
Measure voltage of cord (brown) of film detection switch when pushing film detection switch while shutter prerelease timer is activated.
Correct value:
0V (prior to pushing film detection switch) or (film detection switch is ON.)
Approx. 5.5V (after pushing film detection switch) or (film detection switch is OFF.)
Refer to Fig. e-4-4.

Always 0V. → *Short-circuit of film detection switch.

Small voltage difference.
For example:
1.3V — 0V
→ *Main FPC is defective.

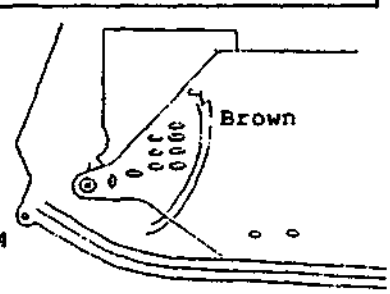


Fig. e-4-4

[E: Inspection of main FPC]

[Inspection of main FPC spool motor driving output]
Set camera back switch OFF or set frame counter "1" or more, measure voltage between P1 and GND of main FPC while shutter release switch is ON.
Correct value:
5.5V (shutter release switch is OFF.)
0V (after shutter release switch is ON)
Refer to Fig. e-4-5.

Remains 5.5V. → *Main FPC is defective.

Normal

Check again carefully to see if you have missed the inspection.

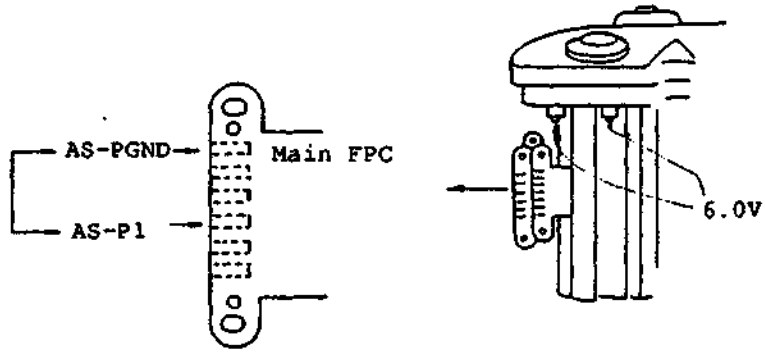


Fig. e-4-5

	Phenomenon	Cause
F-1	Film is not rewound automatically.	1. Damage of film rewind vertical shaft gear. 2. Poor contact of press contact (D). 3. Poor contact of R1 switch. 4. Poor contact of R2 switch. 5. Shutter speed dial base plate is defective. (Shutter speed dial FPC is disconnected.) 6. Power transistor FPC is defective. 7. Main FPC is defective.

Can strange sound or idling sound in film rewind motor be heard after set in power film rewind mode.

Yes → *Film rewind vertical shaft gear is damaged.

No

Check ON/OFF operations of R1, R2, film detection switches using personal computer.

Film detection switch is defective. → E-1 Go to "Malfunction of film advance operation".

R2 switch is defective.

Remove top cover at film rewind side.

Check soldering of R2 switch.

Poor soldering → *Poor soldering of R2 switch.

Good soldering → *Main FPC is defective.

R1 switch is defective.

Remove top cover at film advance side.

[Inspection of R1 switch] Use tester to check ON/OFF operation of R1 switch. Refer to Fig. f-1-1.

Abnormal

Hold up shutter speed dial, clean R1 switch, and check operation.

Normal → *Poor contact of R1 switch.

Abnormal → *Shutter speed dial base plate is defective. (Shutter speed dial FPC is disconnected.)

Normal

a

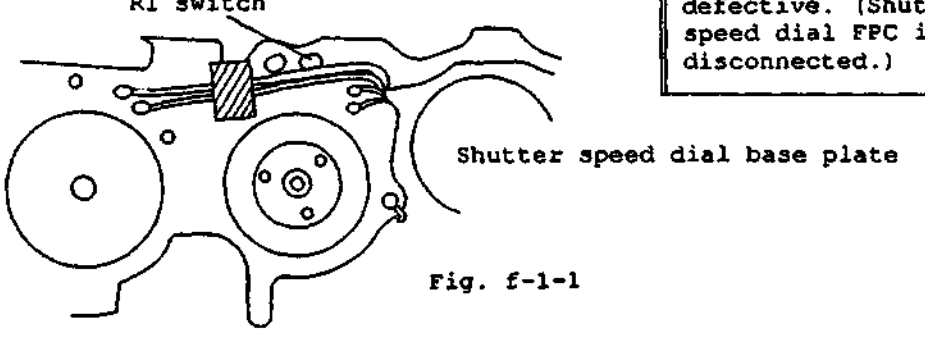


Fig. f-1-1

a

Remove front body

Clean press contact (D).
Set R1 switch, push film detection switch, and check to see if film rewind operation works when R2 switch is set.
And does alert LED blink at 2Hz?

It works. → *Poor contact of press contact (D).

It does not operate.

[Inspection of film rewind motor operation]
Check to see if the motor operates when power is applied to the motor directly.

It does not work. → *Motor is defective.

It operates.

[Inspection of main FPC]
Load film in camera (pulling up film rewind knob), set R1 and R2 switches.
Measure voltage of N3 and N4 at this time.
Correct value: 0V (N3), 5V (N4)
Refer to Fig. f-1-2.

Normal → *Power transistor FPC is defective.

Abnormal → *Main FPC.

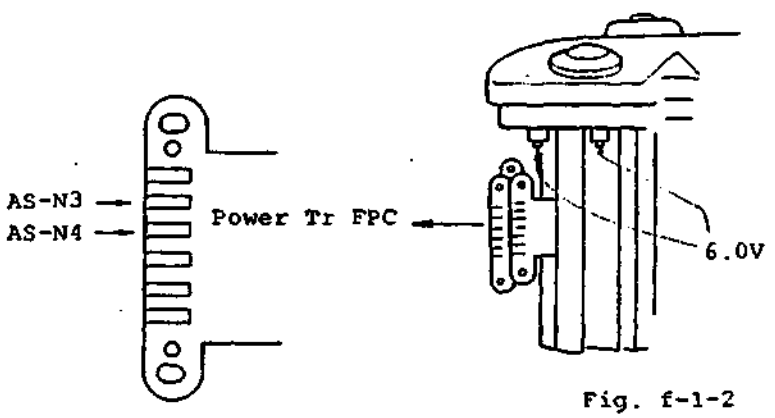
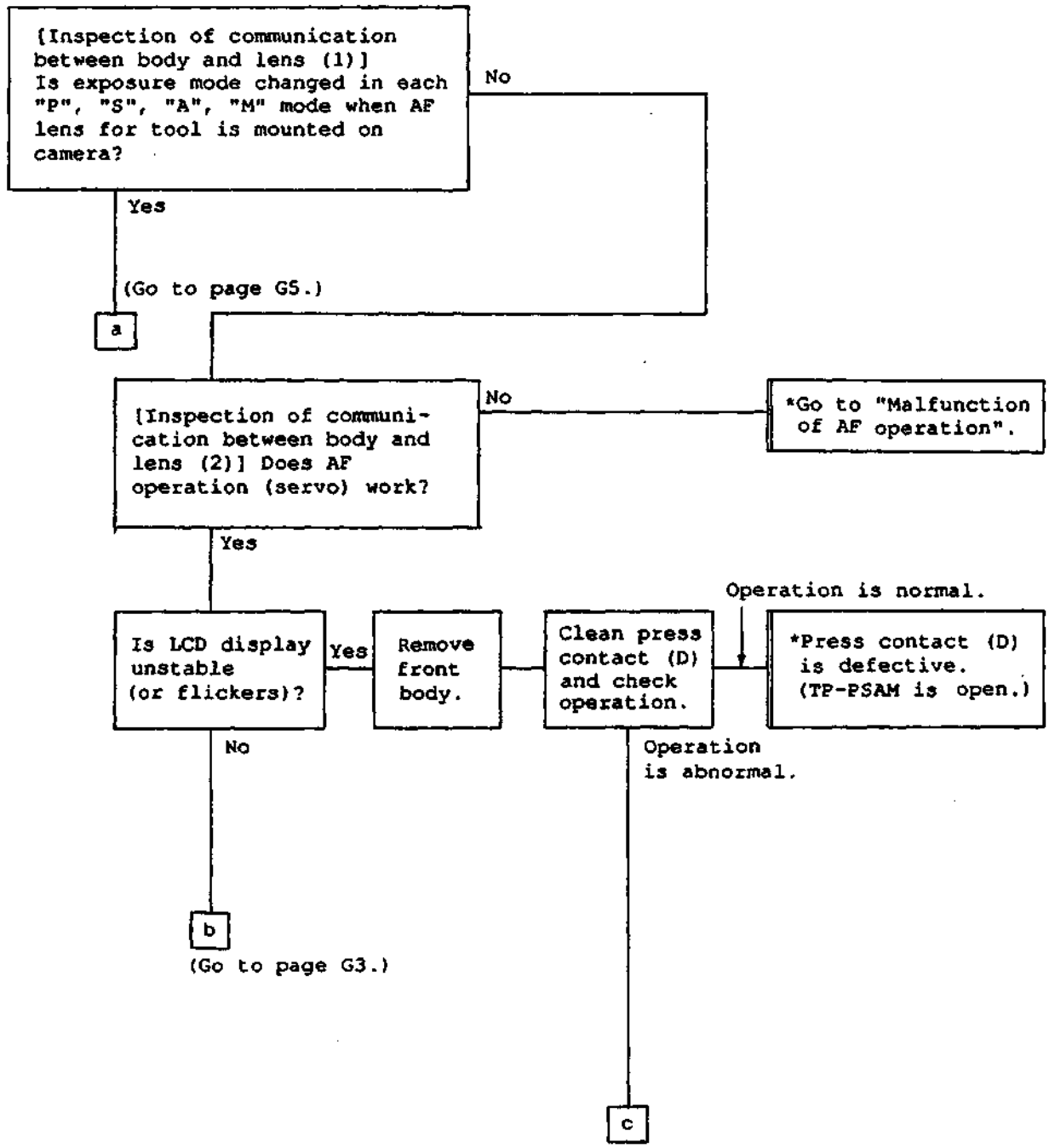


Fig. f-1-2

	Phenomenon	Cause
G-1	Exposure control is abnormal.	1. Poor contact of press contact (D). 2. Shutter speed dial base plate is defective. 3. Main FPC is defective.


[Inspection of communication between body and lens (1)] Is exposure mode changed in each "P", "S", "A", "M" mode when AF lens for tool is mounted on camera?
No
Yes
(Go to page G5.)
a
[Inspection of communication between body and lens (2)] Does AF operation (servo) work?
No
*Go to "Malfunction of AF operation".
Yes
Operation is normal.
Is LCD display unstable (or flickers)?
Yes
Remove front body.
Clean press contact (D) and check operation.
*Press contact (D) is defective. (TP-PSAM is open.)
No
Operation is abnormal.
b
(Go to page G3.)
c

C

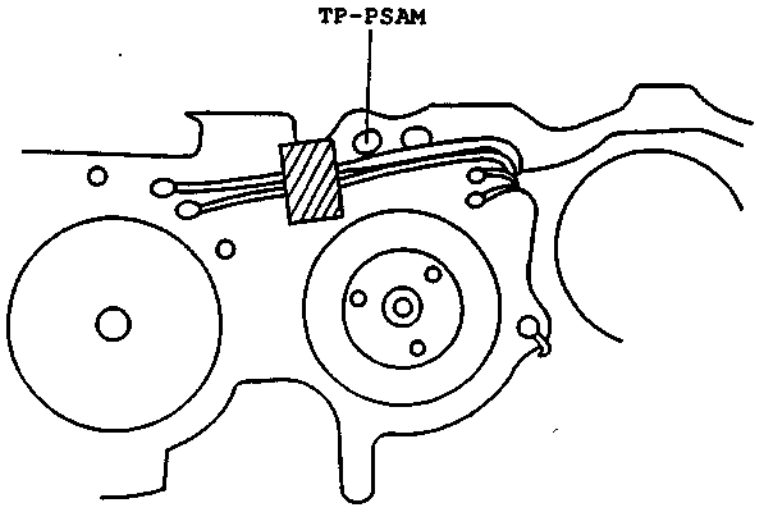
[Inspection of exposure mode selection]
Measure voltage of TP-PSAM in each mode.
Correct value: Approx. 2.7V (PH)
Approx. 2.0V (P)
Approx. 1.4V (S)
Approx. 0.7V (A)
Approx. 0V (M)
Refer to Fig. g-1-1.

Abnormal

*Shutter speed dial base plate is defective.

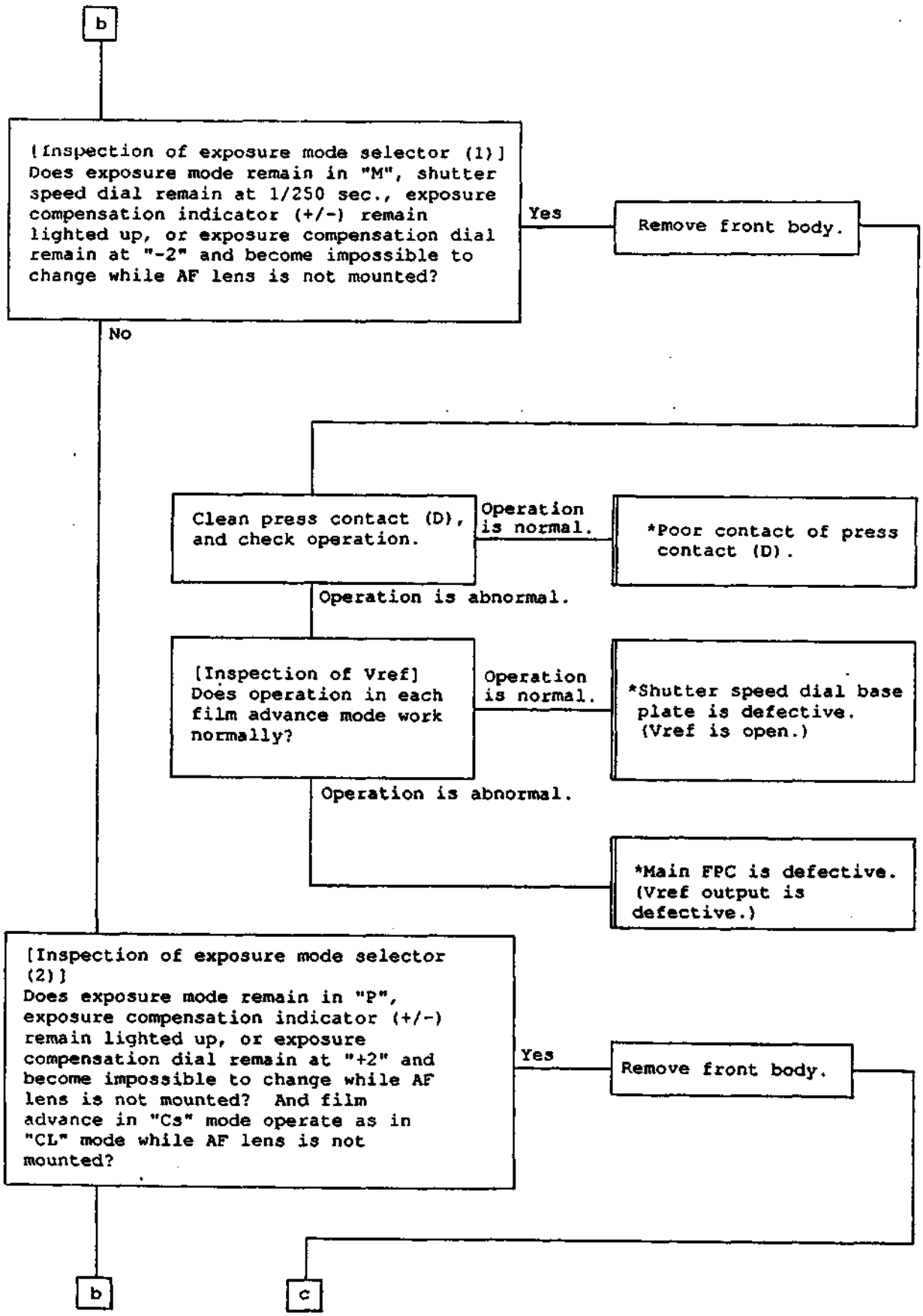
Normal

*Main FPC is defective.



Shutter speed dial base plate

Fig. g-1-1


b
[Inspection of exposure mode selector (1)]
Does exposure mode remain in "M", shutter speed dial remain at 1/250 sec., exposure compensation indicator (+/-) remain lighted up, or exposure compensation dial remain at "-2" and become impossible to change while AF lens is not mounted?
Yes
Remove front body.
No
Clean press contact (D), and check operation.
Operation is normal.
*Poor contact of press contact (D).
Operation is abnormal.
[Inspection of Vref]
Does operation in each film advance mode work normally?
Operation is normal.
*Shutter speed dial base plate is defective. (Vref is open.)
Operation is abnormal.
*Main FPC is defective. (Vref output is defective.)
[Inspection of exposure mode selector (2)]
Does exposure mode remain in "P", exposure compensation indicator (+/-) remain lighted up, or exposure compensation dial remain at "+2" and become impossible to change while AF lens is not mounted? And film advance in "Cs" mode operate as in "CL" mode while AF lens is not mounted?
Yes
Remove front body.
b
c

b

c

Clean press contact (D), and check operation.

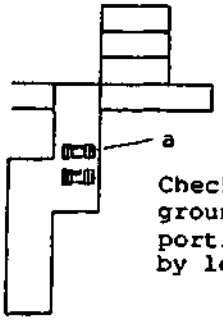
Operation is normal.

*Poor contact of press contact (D).

Operation is abnormal.

[Inspection of GND line]

Shutter speed dial



Check operation by grounding the portion indicated by letter "a".

Operation is normal.

*Shutter speed dial base plate is defective. (GND line of press contact of shutter speed dial FPC is disconnected.)

*Same phenomenon occurs when press contact pattern TP-GND of shutter speed dial FPC is disconnected.

Operation is abnormal.

*Main FPC is defective.

[Inspection of exposure mode selector (3)]
Does all exposure modes become "P", all exposure mode becomes "M" when illuminator switch is turned ON without mounting AF lens?

Yes

*Short-circuit between TP-PSAM and TP-SELF in press contact (D).
*Shutter speed dial FPC is defective.

No

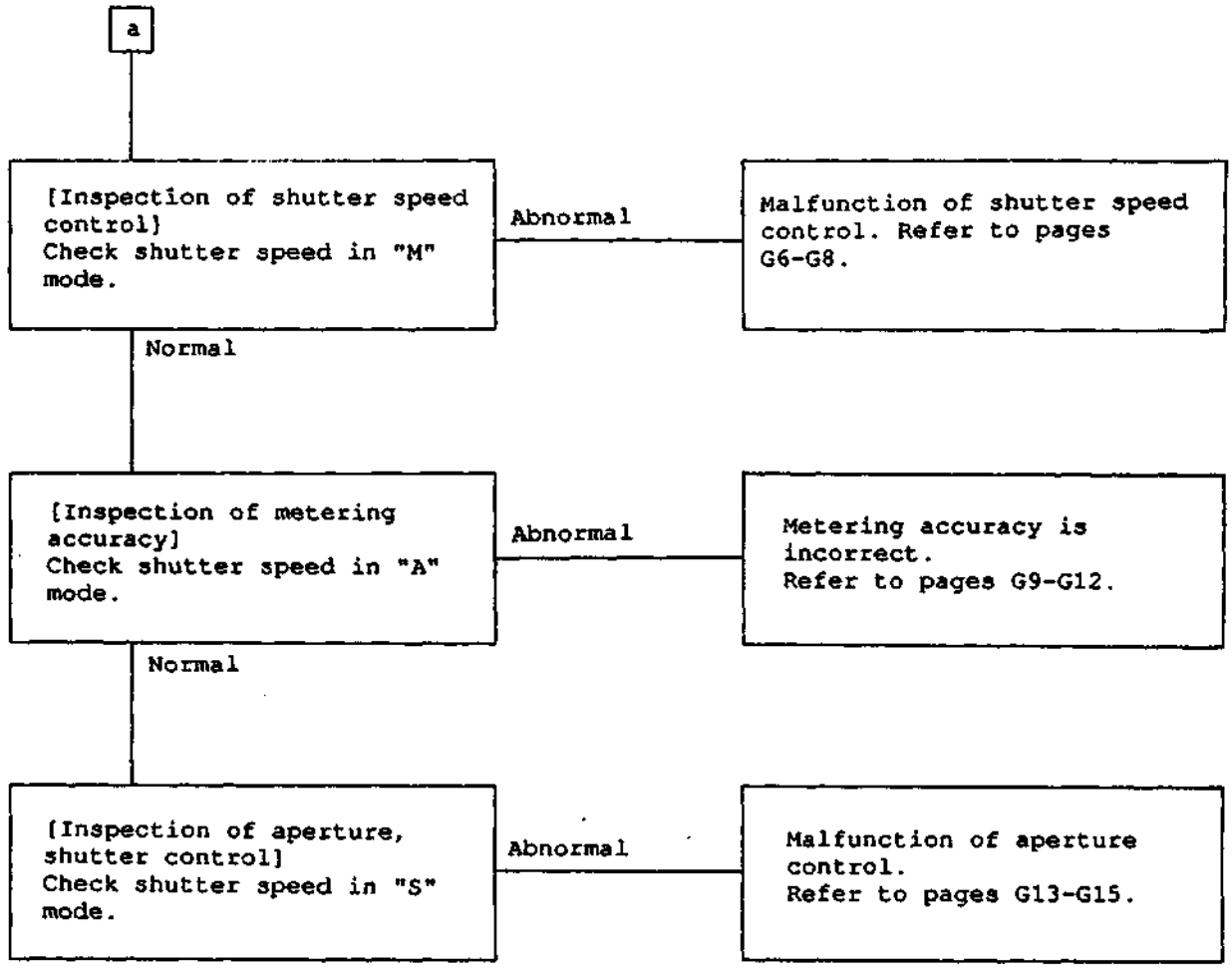
[Inspection of exposure mode selection (4)]
All modes become in "P" mode except for "M" mode when AF lens is not mounted. When self-timer is set, "M" mode remains as it is, but "A" and "S" modes become in "P" mode. And display and exposure become unstable. Self-timer indicator LED lights up when shutter prerelease switch is ON. (Brightness of self-timer indicator in each mode: M > A > S > P does not light up.)

Yes

*Short-circuit between TP-PSAM and TP-illuminator in press contact (D).
*Shutter speed dial base plate is defective.

No

*Main FPC


a
[Inspection of shutter speed control]
Check shutter speed in "M" mode.
Abnormal
Malfunction of shutter speed control. Refer to pages G6-G8.
Normal
[Inspection of metering accuracy]
Check shutter speed in "A" mode.
Abnormal
Metering accuracy is incorrect.
Refer to pages G9-G12.
Normal
[Inspection of aperture, shutter control]
Check shutter speed in "S" mode.
Abnormal
Malfunction of aperture control.
Refer to pages G13-G15.

	Phenomenon	Cause
G-2	Shutter speed setting is unstable.	1. Shutter is defective. 2. 3. 4.

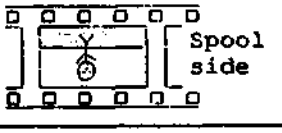
	Phenomenon	Cause
G-3	No adjustment of high shutter speed accuracy (1/8000, 1/4000 sec.) is possible.	1. Shutter is defective. 2. Data on EEPROM (11) is incorrect. 3. 4.

	Phenomenon	Cause
G-4	Shutter curtain does not open sometimes.	1. Shutter is defective. 2. 3. 4.

	Phenomenon	Cause
G-5	Shutter curtain does not open.	1. Shutter is defective. 2. Poor press contact (D) 3. Main FPC is defective. 4.

*If the same trouble occurs even when shutter is replaced (press contact (D) is cleaned), main FPC is defective.

	Phenomenon	Cause
G-6	Shutter bound.	1. Shutter is defective. 2. 3.

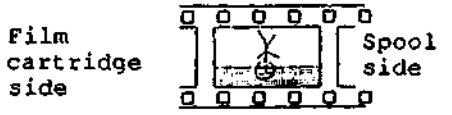
	Phenomenon	Cause
G-7	Shade appears on frame (upper part). Film cartridge side.  	1. Shutter is defective.

Notes on suffix:

E, F: No measures have been taken. (It is possible that rear curtain does not return or focusing screen is shaded.)

G, H, JH, JHG, ...L: Measures have been taken temporary. It is less possible that rear curtain does not return or focusing screen is shaded. If it occurs, send the defective shutter back to Nikon with a reporting sheet.)

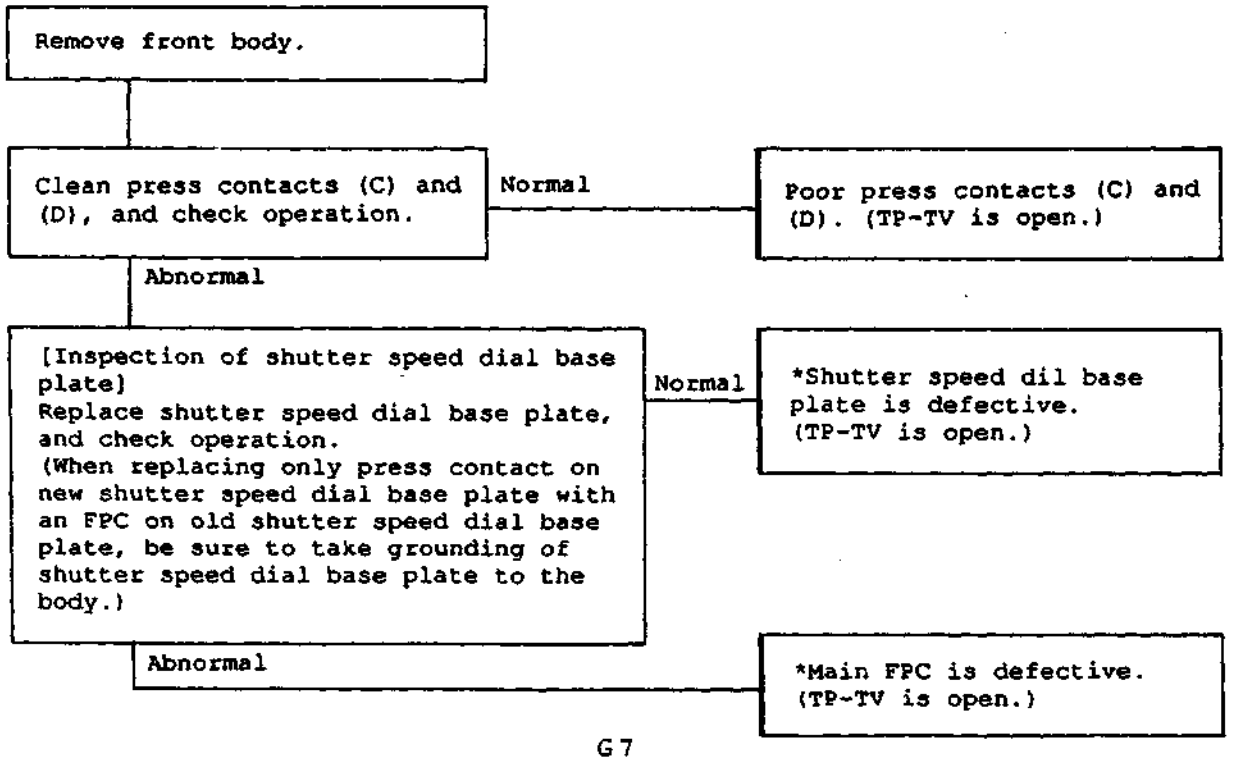
K, and after: Measures have been taken. (If trouble has occurred, send defective shutter back to Nikon with a reporting sheet.)

	Phenomenon	Cause
G-8	Shade appears on frame, underexposure (lower part). 	1. Charging cam is defective.

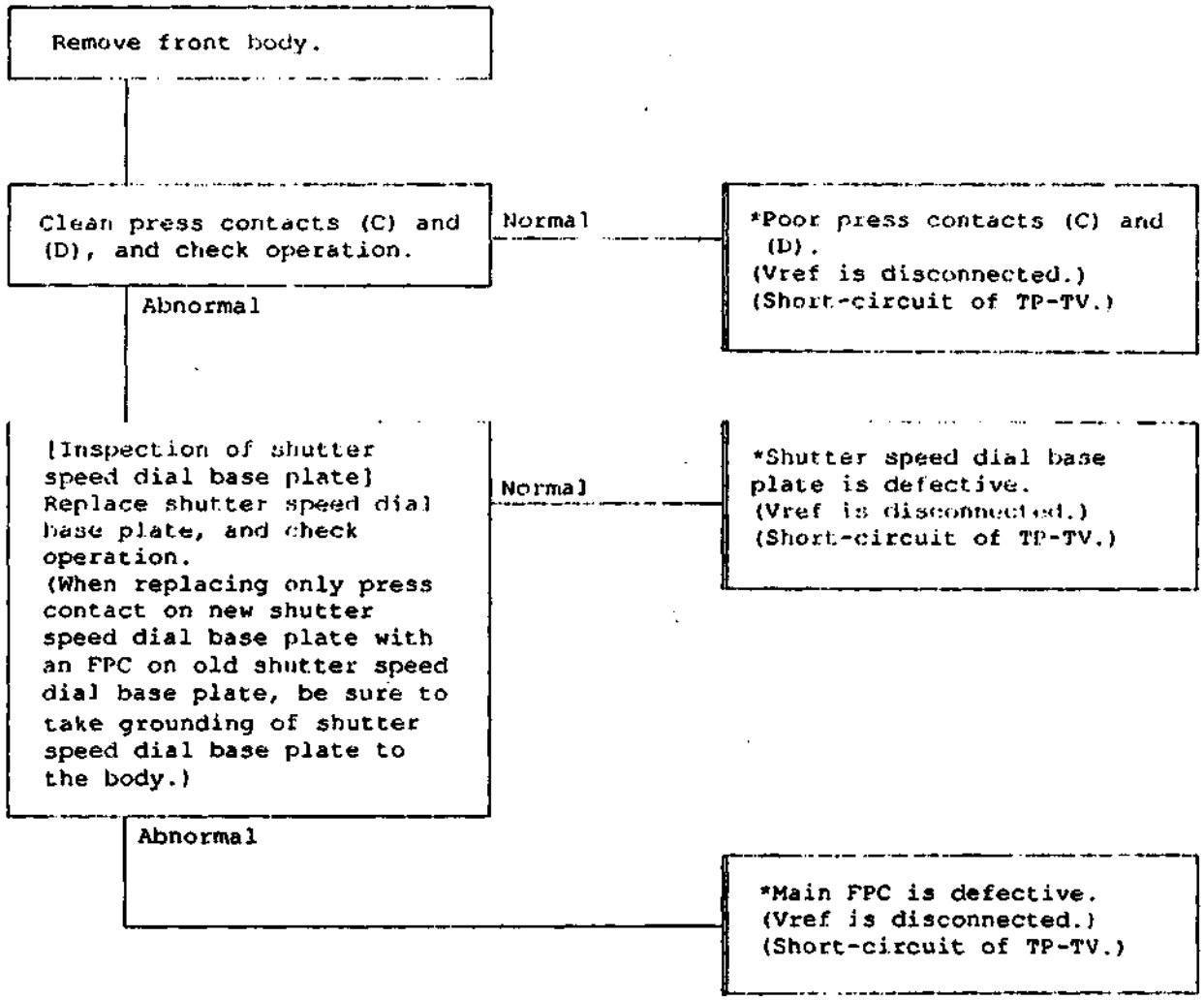
	Phenomenon	Cause
G-9	All shutter speeds of 1/125 sec.or higher are set to 1/60 sec.	1. Shutter is defective. 2. Poor press contact (D) 3. Main FPC is defective. 4.

	Phenomenon	Cause
G-10	Some of shutter speeds on dial do not change when shutter speed dial is rotated.	1. Shutter speed dial base plate is defective. 2. Poor press contact (D) 3. Main FPC is defective. 4.

	Phenomenon	Cause
G-11	Shutter speed remains at 1/8000 sec.	1. Poor press contact (D) 2. Shutter speed dial base plate is defective. 3. Main FPC is defective. 4.

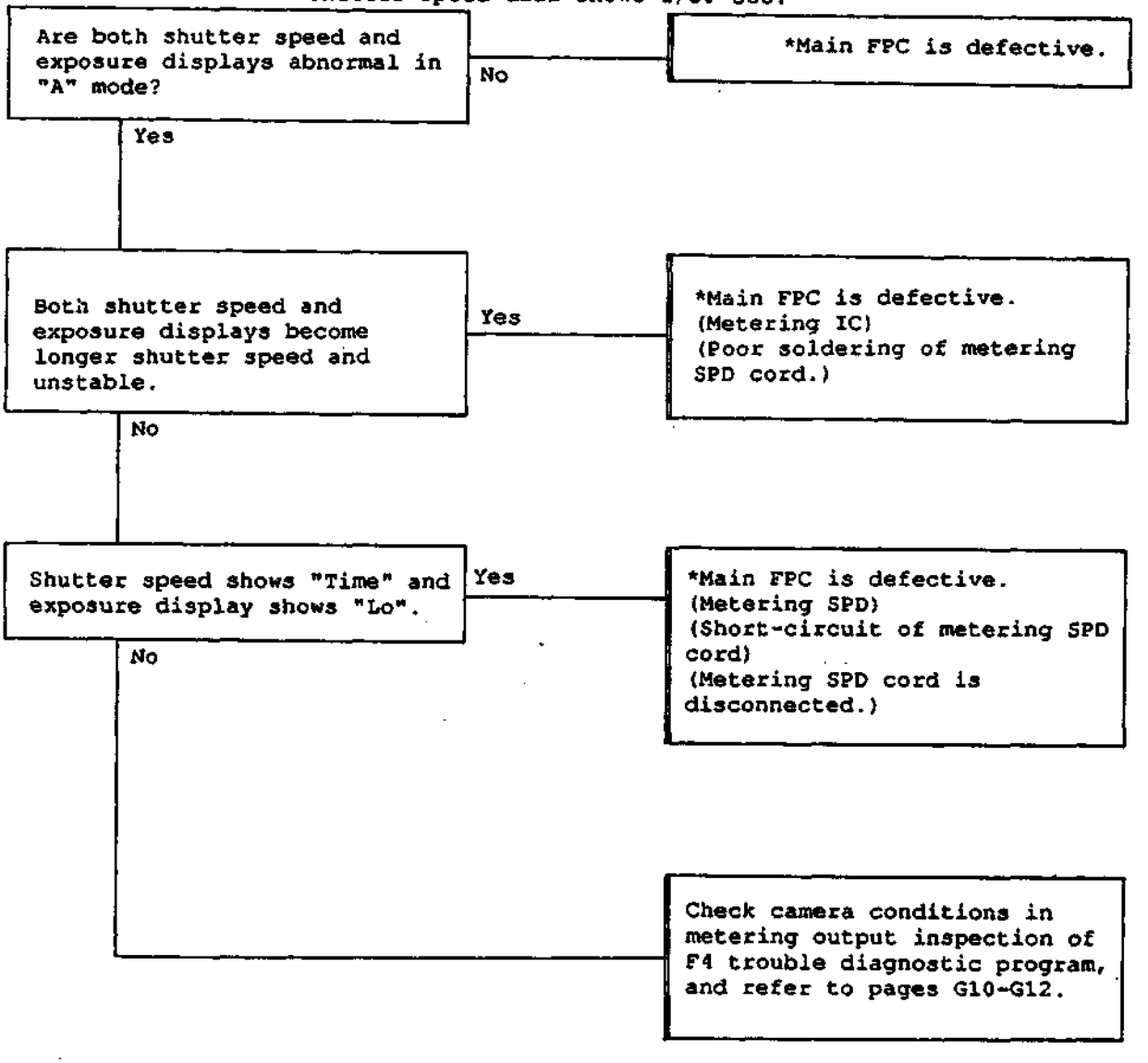

Remove front body.
Clean press contacts (C) and (D), and check operation.
Normal
Poor press contacts (C) and (D). (TP-TV is open.)
Abnormal
[Inspection of shutter speed dial base plate]
Replace shutter speed dial base plate, and check operation.
(When replacing only press contact on new shutter speed dial base plate with an FPC on old shutter speed dial base plate, be sure to take grounding of shutter speed dial base plate to the body.)
Normal
*Shutter speed dil base plate is defective.
(TP-TV is open.)
Abnormal
*Main FPC is defective.
(TP-TV is open.)

	Phenomenon	Cause
G-12	Shutter speed remains at 1/250 (X) sec.	1. Shutter speed dial base plate is defective. 2. Poor press contact (D) 3. Main FPC is defective. 4.


Remove front body.
Clean press contacts (C) and (D), and check operation.
Normal
*Poor press contacts (C) and (D).
(Vref is disconnected.)
(Short-circuit of TP-TV.)
Abnormal
[Inspection of shutter speed dial base plate]
Replace shutter speed dial base plate, and check operation.
(When replacing only press contact on new shutter speed dial base plate with an FPC on old shutter speed dial base plate, be sure to take grounding of shutter speed dial base plate to the body.)
Normal
*Shutter speed dial base plate is defective.
(Vref is disconnected.)
(Short-circuit of TP-TV.)
Abnormal
*Main FPC is defective.
(Vref is disconnected.)
(Short-circuit of TP-TV.)

	Phenomenon	Cause
G-13	Metering accuracy is incorrect. *Only spot metering accuracy is incorrect.	1. Main FPC is defective. 2. 3.

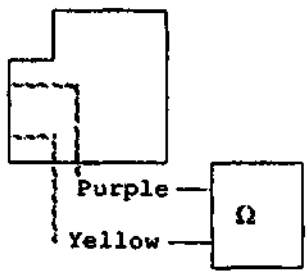
Example: Exposure display shows 1/250 sec. though shutter speed dial shows 1/30 sec.


Are both shutter speed and exposure displays abnormal in "A" mode?
No
*Main FPC is defective.
Yes
Both shutter speed and exposure displays become longer shutter speed and unstable.
Yes
*Main FPC is defective.
(Metering IC)
(Poor soldering of metering SPD cord.)
No
Shutter speed shows "Time" and exposure display shows "Lo".
Yes
*Main FPC is defective.
(Metering SPD)
(Short-circuit of metering SPD cord)
(Metering SPD cord is disconnected.)
No
Check camera conditions in metering output inspection of F4 trouble diagnostic program, and refer to pages G10-G12.

	Phenomenon	Cause
G-14	Metering value is incorrect.	1. Main FPC is defective. 2.

	Phenomenon	Cause
G-15	Aperture value (F-Fo) is incorrect.	1. F-Fo base plate is defective. 2. Poor contact of F-Fo pulley (brush). 3. Main FPC is defective.

[Inspection of F-Fo]



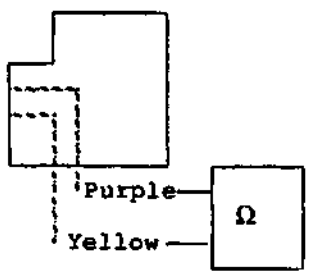
Does resister value vary when aperture coupling ring is moved?
Correct value:
Full aperture side = 0Ω
Minimum aperture side
= Approx. 4kΩ.

No → *F-Fo base plate is defective.
*Poor contact of F-Fo pulley (brush)

Yes → *Main FPC is defective.

	Phenomenon	Cause
G-16	Full aperture value (Fo) is incorrect.	1. Fo base plate is defective. 2. Poor contact of Fo brush

[Inspection of F-Fo]



Does resister value vary when Fo lever is moved?
Correct value:
Fo MIN. = 0Ω
Fo MAX. = Approx. 4kΩ.

No → *Fo base plate is defective.

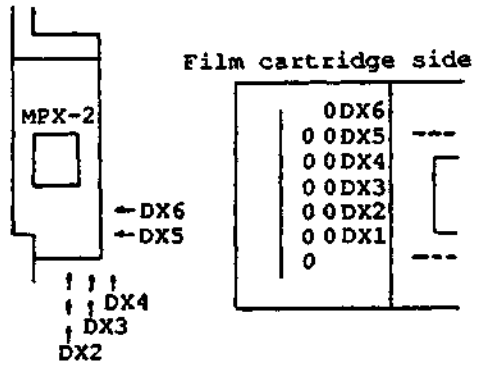
Yes → *Main FPC is defective.

	Phenomenon	Cause
G-17	Film speed value is incorrect.	1. Poor contact of film speed dial brush. 2. Short-circuit or disconnection of circuit patterns in film speed dial. 3. Main FPC is defective.

	Phenomenon	Cause
G-18	DX-coded value is incorrect.	1. Poor contact of DX pins. 2. Poor contact between DX pins and DX FPC. 3. Film cartridge is defective. 4. Poor press contact (E). 5. Main FPC is defective.

Remove front cover.

[Inspection of continuity of DX contacts]
Check continuity between DX contacts and main FPC (MPX-2).



Normal → *Main FPC is defective.

Abnormal

Clean press contact (E), and repeat [Inspection of continuity of DX contacts] operation.

Normal → *Poor contact of press contact (E).

Abnormal → *DX, DB, FD FPC are defective.

	Phenomenon	Cause
G-19	Exposure compensation value is incorrect.	1. Shutter speed dial base plate is defective. 2. Poor contact of press contact (D). 3. Main FPC is defective.

Remove bottom cover.

[Inspection of exposure compensation dial output]
Check voltage of TP-HOSEI.
Correct value:
Compensation dial 0 = 1.65V
Compensation dial −2 = 0.00V
Compensation dial +2 = 3.50V

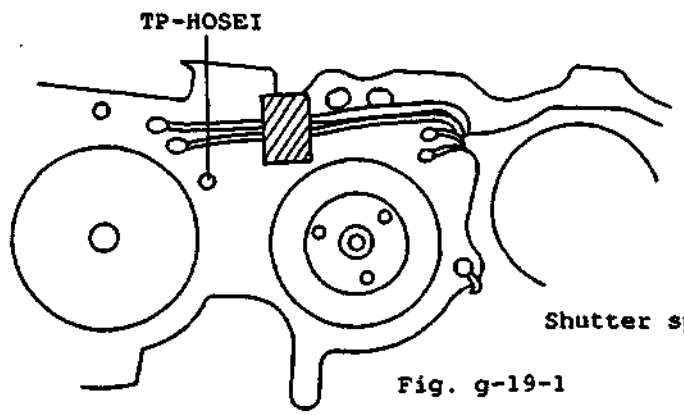
Refer to Fig. g-19-1.

Abnormal → Clean press contact (D), and check operation.

Normal → *Poor contact of press contact (D).

Abnormal → *Shutter speed dial base plate is defective.

Normal → *Main FPC is defective.



Shutter speed dial base plate

Fig. g-19-1

	Phenomenon	Cause
G-20	AE-L button is defective.	1. Lock encoder FPC is defective. 2. AE-L switch is defective. 3. Main FPC is defective.

Remove press contact (B), and check operation.

Operation is abnormal. → *Main FPC is defective.

Operation is normal. → *Lock encoder FPC is defective.
*AE-L switch is defective.

	Phenomenon	Cause
G-21	Always in minimum aperture value.	1. Poor contact of AF connector. 2. Poor contact of press contact (B). 3. Aperture P.I is defective. 4. Aperture Mg. is defective. 5. Tension of aperture gear speed-up spring is defective. 6. Mirror box mechanism is defective. 7. Main FPC is defective.

Remove bottom cover.

Clean AF connector, and check operation.

Normal → *Poor contact of AF connector.

Abnormal

Clean press contact (B), and check operation.

Normal → *Poor press contact (B).

Abnormal

Raise bottom main FPC.

[Inspection of aperture P.I pulse]
Mount LED between TP-PCOA and TP-GND. Check to see if LED lights up twice after shutter release operation.
Refer to Fig. g-21-1.

No → Remove front body.

[Inspection of aperture P.I]
Check in the following ways.
Refer to Fig. g-21-2.

Normal → *Main FPC is defective.

Abnormal → *Aperture P.I is defective.
*Poor soldering of aperture P.I.

Yes

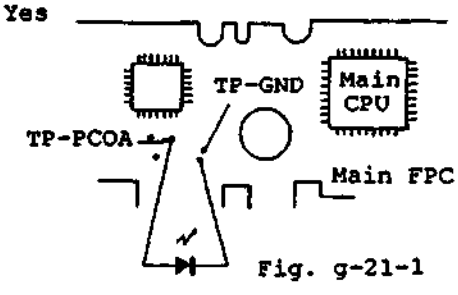


Fig. g-21-1

[Inspection of aperture P.I]
Connect cords as shown in Fig. g-21-2, and check to see if LED lights up when aperture lever is moved.
LED blinks: Normal.
LED does not blink: Abnormal.

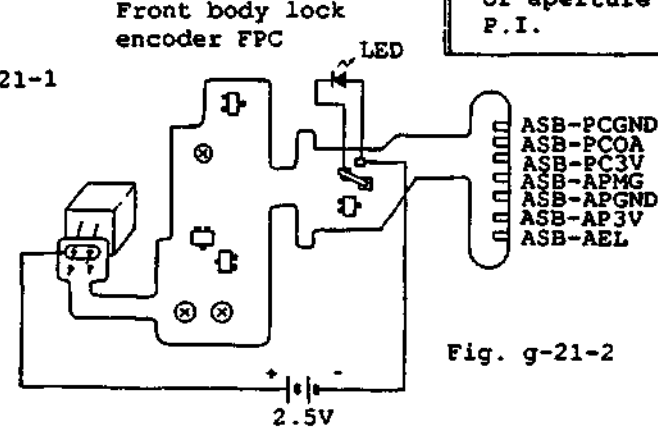
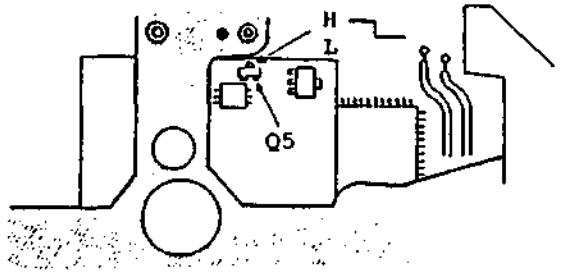


Fig. g-21-2

a

a

[Inspection of aperture Mg. ON signal]
Check to see if aperture Mg. ON signal is output after shutter release operation using oscilloscope.

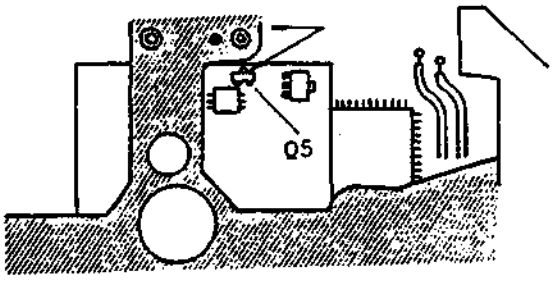


No signal is output.

*Main FPC is defective.

Signal is output.

[Inspection of aperture Mg. ON operation]
Check to see if "click" sound can be heard when collector of Q5 is short-circuited to GND (diecast) while shutter prerelease timer is ON.



No sound can be heard.

*Aperture Mg. is defective.

Sound can be heard.

[Inspection of mirror box mechanism]
Mount lens on camera, and check to see if lens aperture is in full aperture when shutter is released while release switch is ON in the same conditions (aperture Mg is being operated) as mentioned above [Inspection of aperture Mg. operation].

Not in full aperture.

*Mirror box mechanism is defective.

In full aperture.

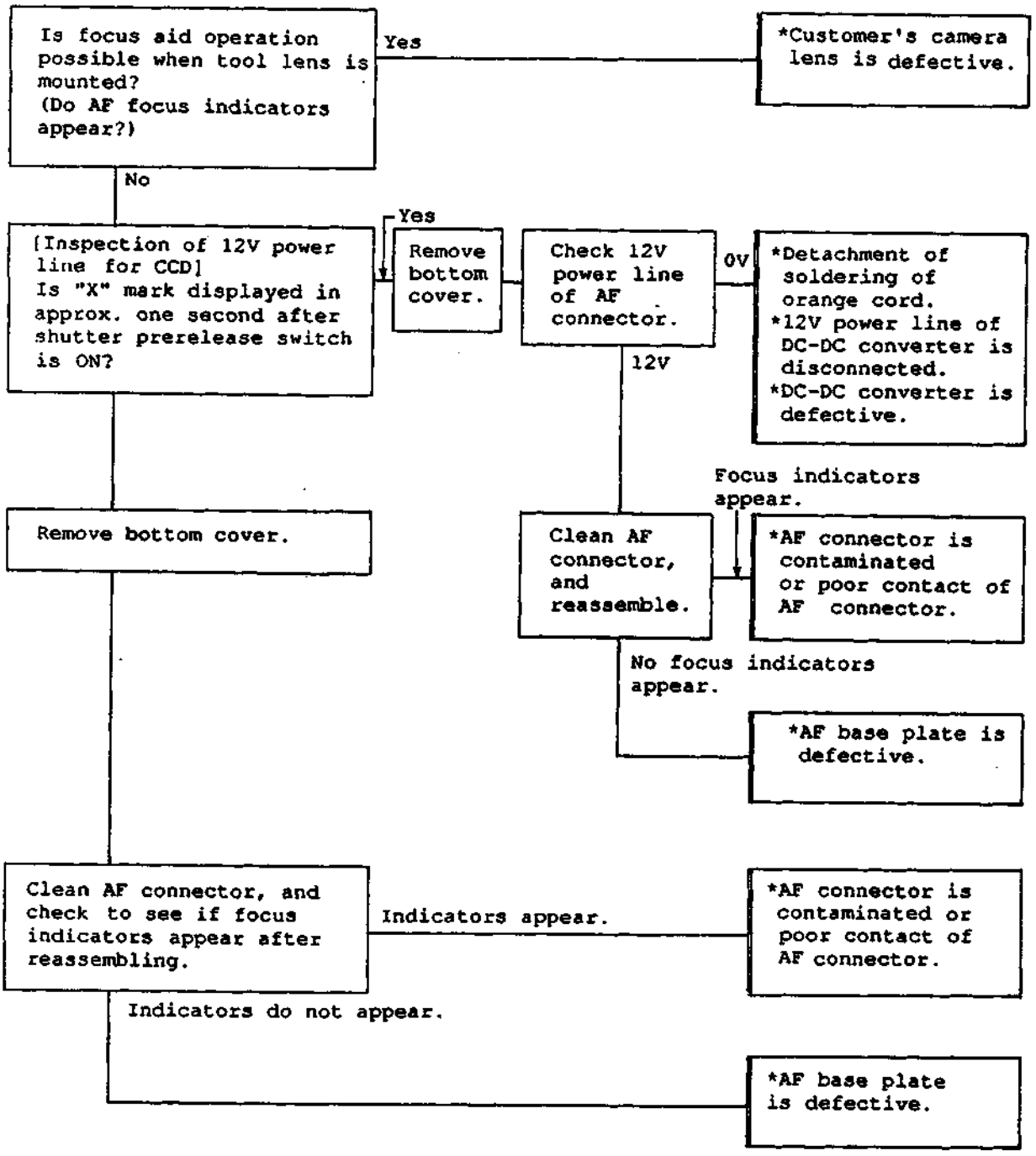
*Tension of aperture speed-up gear spring is defective. (270° normally).

	Phenomenon	Cause
G-22	Always in full aperture value.	1. Poor contact of AF connector. 2. Mirror box mechanism is defective. 3. Aperture Mg. is defective. 4.

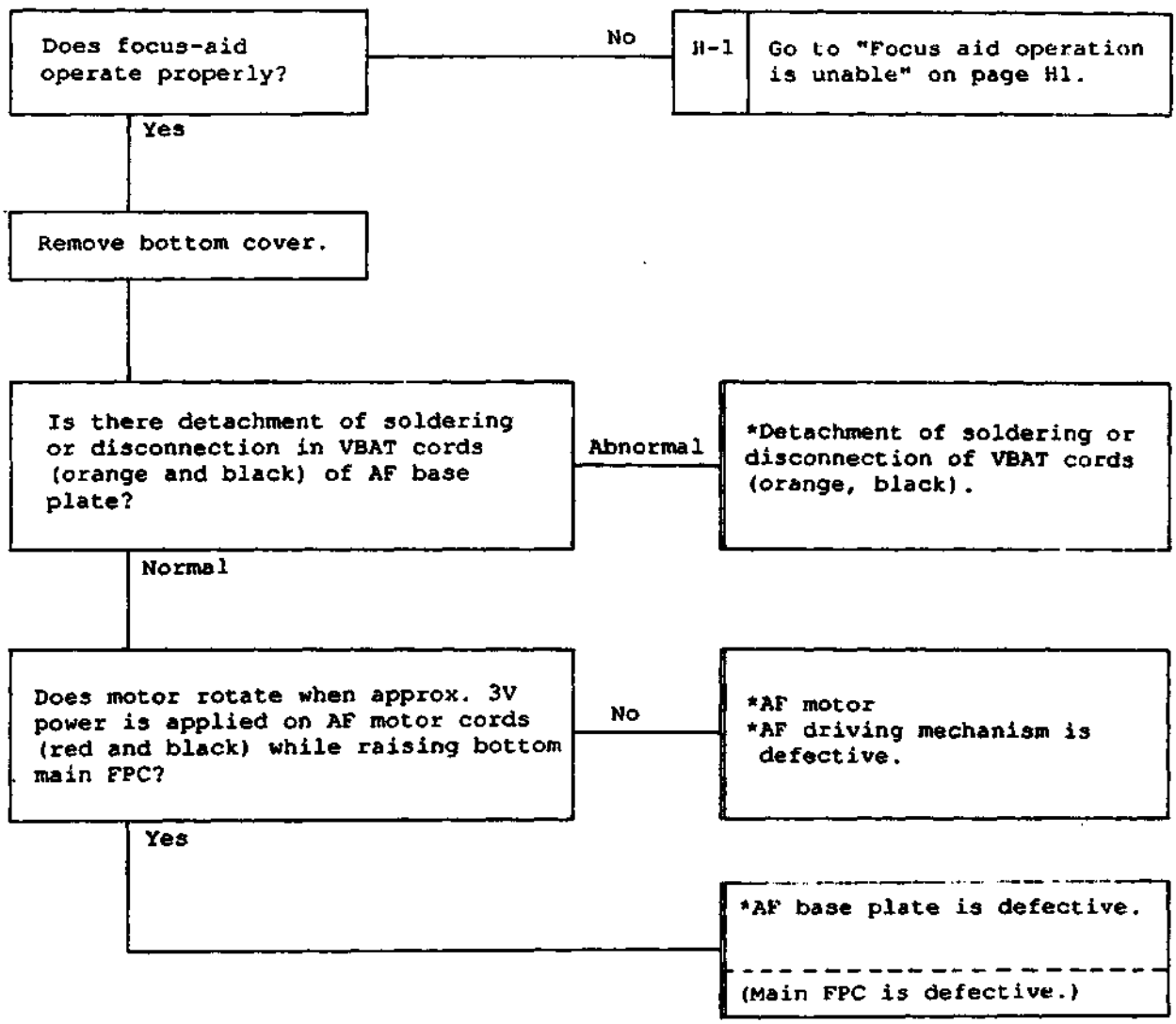
	Phenomenon	Cause
G-23	Aperture control is unstable.	1. Poor contact of AF connector. 2. Mirror box mechanism is defective. 3. Poor soldering of aperture P.I. 4.

	Phenomenon	Cause
G-24	Exposure value of aperture and shutter speed controls differ by 1EV or more.	1. Tension of aperture speed-up gear spring is defective. 2. 3. 4.

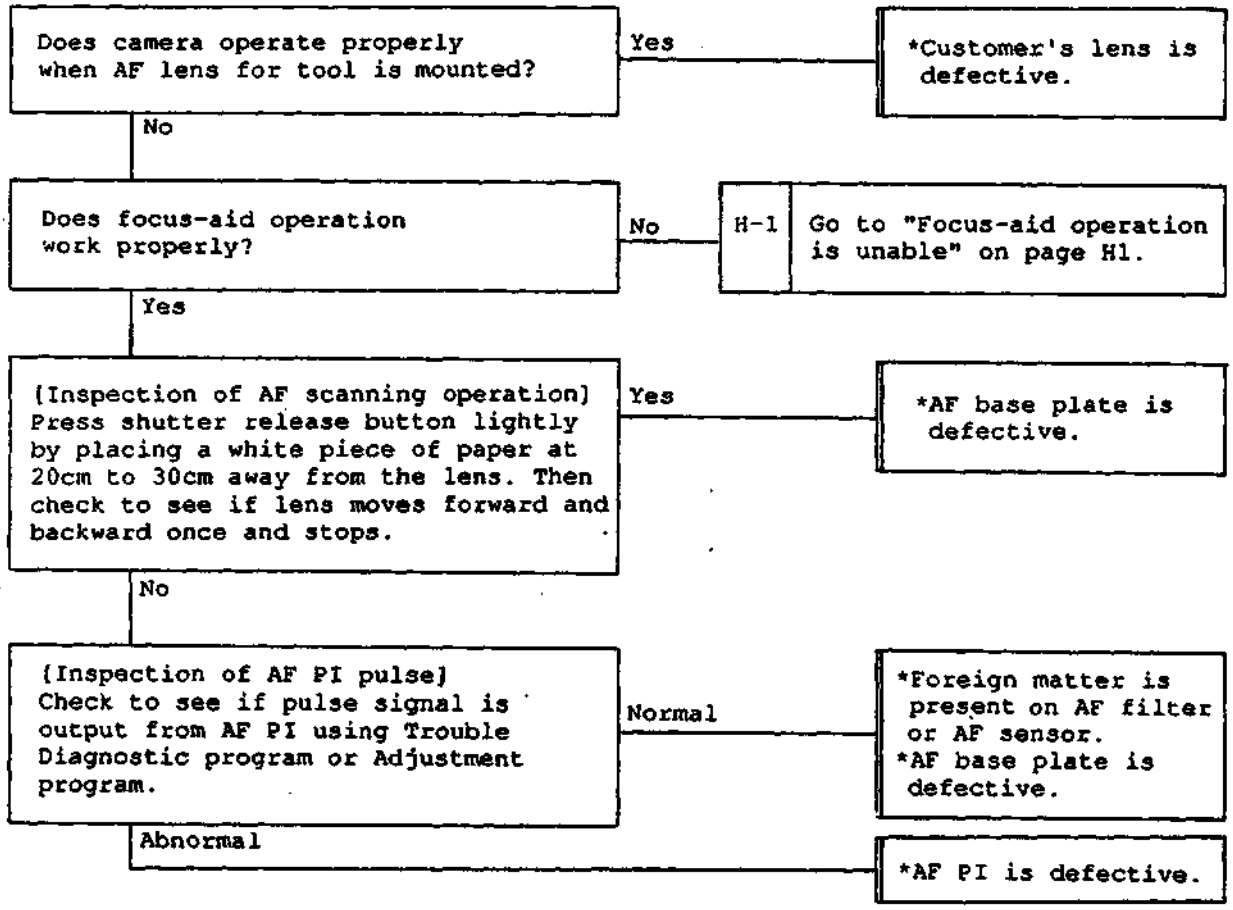
	Phenomenon	Cause
H-1	Focus aid operation is unable. (Focus indicators X▶●◀ do not appear.)	1. Poor contact of AF connector or it is contaminated. 2. Disconnection or detachment of soldering of orange cord. 3. AF base plate is defective. 4. DC-DC converter is defective. 5. Main FPC is defective.


Is focus aid operation possible when tool lens is mounted? (Do AF focus indicators appear?)
Yes
*Customer's camera lens is defective.
No
[Inspection of 12V power line for CCD] Is "X" mark displayed in approx. one second after shutter prerelease switch is ON?
Yes
Remove bottom cover.
Check 12V power line of AF connector.
0V
*Detachment of soldering of orange cord.
*12V power line of DC-DC converter is disconnected.
*DC-DC converter is defective.
12V
Focus indicators appear.
Clean AF connector, and reassemble.
*AF connector is contaminated or poor contact of AF connector.
No focus indicators appear.
*AF base plate is defective.
Remove bottom cover.
Clean AF connector, and check to see if focus indicators appear after reassembling.
Indicators appear.
*AF connector is contaminated or poor contact of AF connector.
Indicators do not appear.
*AF base plate is defective.

	Phenomenon	Cause
H-2	AF lens does not operate.	1. AF base plate is defective. 2. AF driving portion (including AF motor.) is defective. 3. Main FPC is defective.


Does focus-aid operate properly?
No
H-1
Go to "Focus aid operation is unable" on page H1.
Yes
Remove bottom cover.
Is there detachment of soldering or disconnection in VBAT cords (orange and black) of AF base plate?
Abnormal
*Detachment of soldering or disconnection of VBAT cords (orange, black).
Normal
Does motor rotate when approx. 3V power is applied on AF motor cords (red and black) while raising bottom main FPC?
No
*AF motor
*AF driving mechanism is defective.
Yes
*AF base plate is defective.
(Main FPC is defective.)

	Phenomenon	Cause
H-3	Unstable AF lens operation.	1. Foreign matter is present on AF filter or AF sensor. 2. Poor soldering of AF PI. Operation of AF PI mechanism is improper. 3. AF base plate is defective.

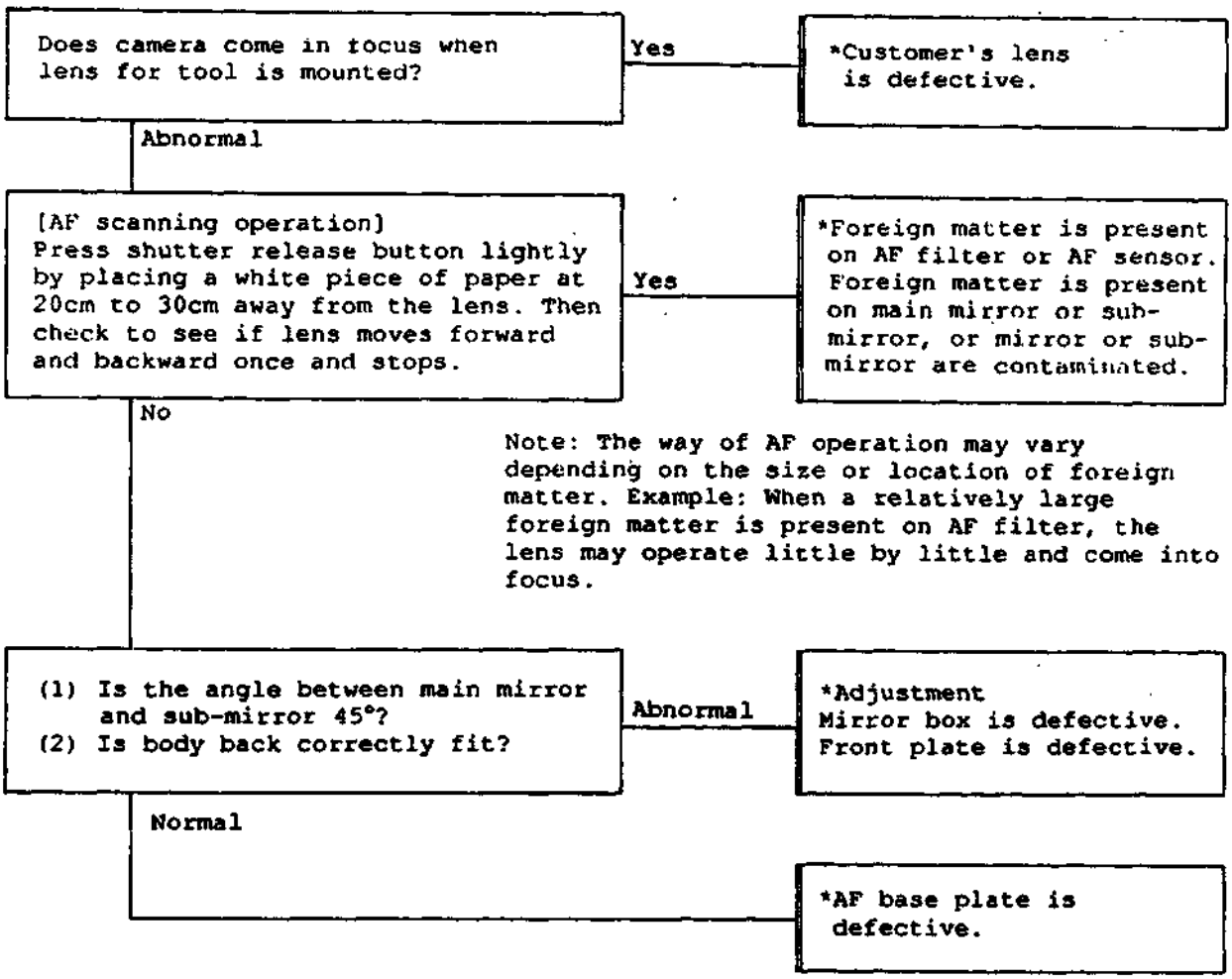

Does camera operate properly when AF lens for tool is mounted?
Yes
*Customer's lens is defective.
No
Does focus-aid operation work properly?
No
H-1
Go to "Focus-aid operation is unable" on page H1.
Yes
(Inspection of AF scanning operation) Press shutter release button lightly by placing a white piece of paper at 20cm to 30cm away from the lens. Then check to see if lens moves forward and backward once and stops.
Yes
*AF base plate is defective.
No
(Inspection of AF PI pulse) Check to see if pulse signal is output from AF PI using Trouble Diagnostic program or Adjustment program.
Normal
*Foreign matter is present on AF filter or AF sensor.
*AF base plate is defective.
Abnormal
*AF PI is defective.

Note: The way of AF operation may vary depending on the size or location of foreign matter.
Example: When a relatively large piece of foreign matter is present on the AF filter, the lens may operate little by little and come into focus.

	Phenomenon	Cause
H-4	AF lens performs scanning operation only when shutter prerelease switch is ON.	1. Foreign matter is present on AF filter or AF sensor. 2. Poor soldering of AF.PI. Mechanical operation of AF.PI is improper. 3. AF base plate is defective.

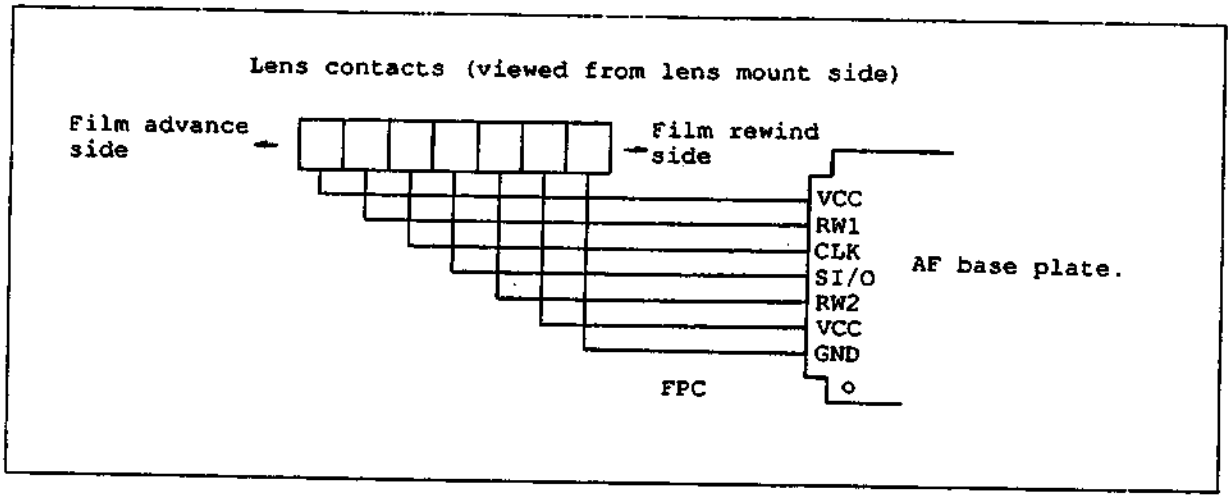
AF scanning operation:
Usually AF lens moves from infinity to near and near to infinity once immediately after shutter prerelease switch is turned ON when nothing has been detected on AF sensor (or not in focus).

	Phenomenon	Cause
H-5	Subject is not in focus on focusing screen though in-focus indicator appears.	1. Foreign matter is present on AF filter or AF sensor. 2. Angle of 45° between main and sub mirrors is incorrect. 3. Body back is defective. 4. AF adjustment is improper. 5. Customer's lens is defective.


Does camera come in focus when lens for tool is mounted?
Yes
*Customer's lens is defective.
Abnormal
[AF scanning operation]
Press shutter release button lightly by placing a white piece of paper at 20cm to 30cm away from the lens. Then check to see if lens moves forward and backward once and stops.
Yes
*Foreign matter is present on AF filter or AF sensor. Foreign matter is present on main mirror or sub-mirror, or mirror or sub-mirror are contaminated.
No
(1) Is the angle between main mirror and sub-mirror 45°?
(2) Is body back correctly fit?
Abnormal
*Adjustment
Mirror box is defective.
Front plate is defective.
Normal
*AF base plate is defective.

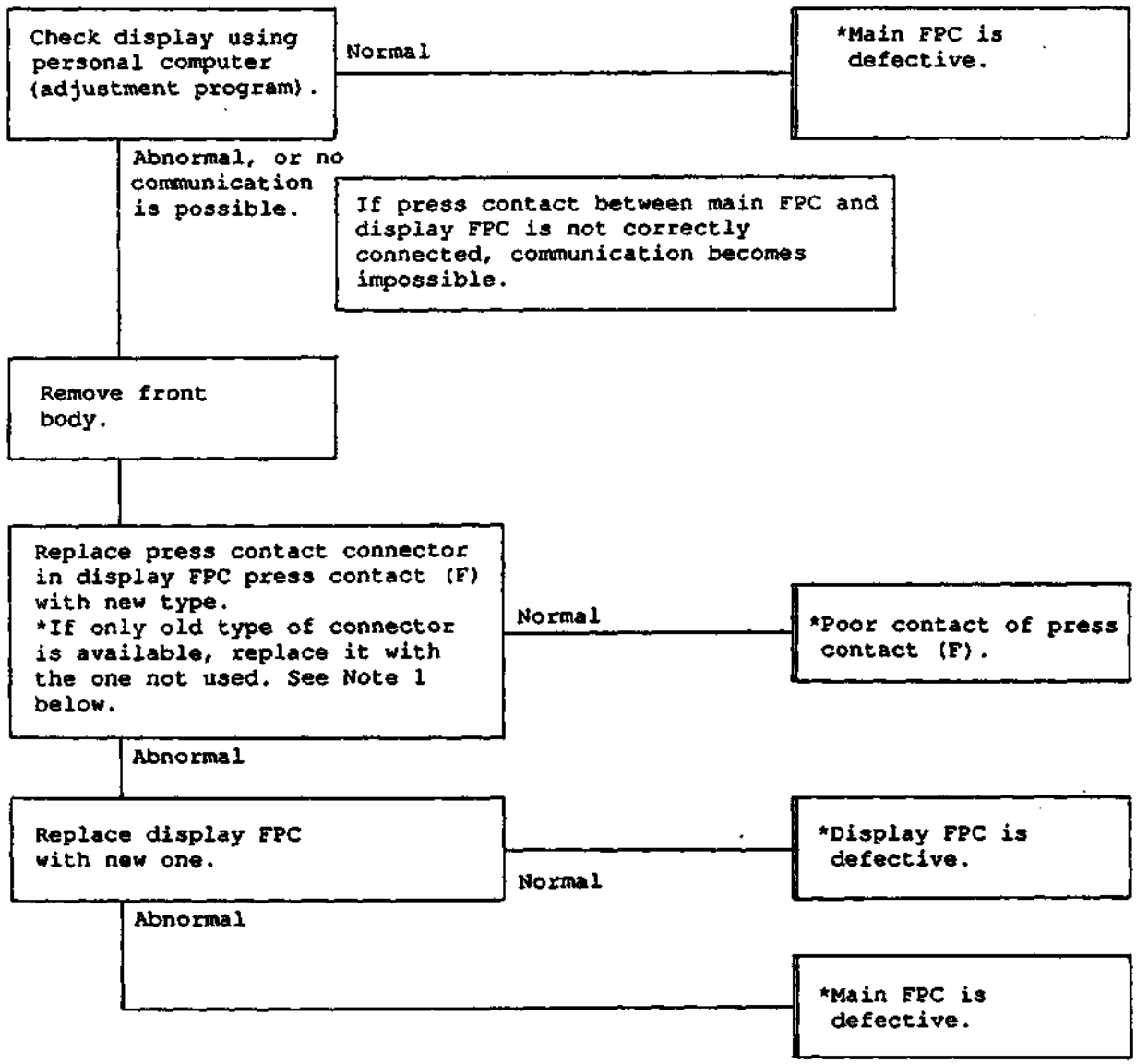
Note: The way of AF operation may vary depending on the size or location of foreign matter. Example: When a relatively large foreign matter is present on AF filter, the lens may operate little by little and come into focus.

H-6	List of trouble due to disconnection of lens contacts (7portions).



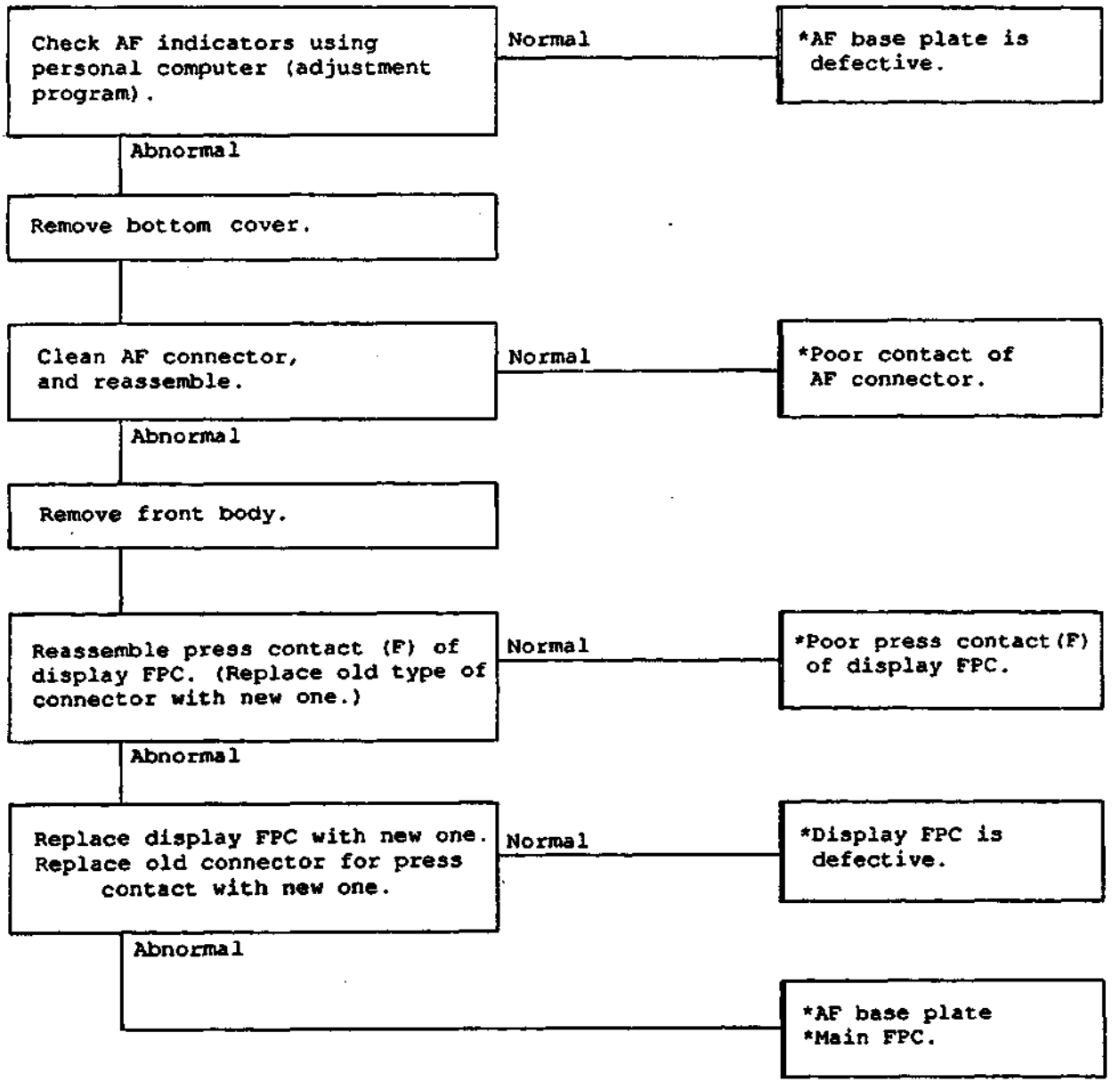
Terminal No.	Terminal name	Phenomenon (AF lens)		Phenomenon (AF lens for F3)
A	VCC	Focus aid is possible AF does not work. No communication with flash.	Does not change to "P" and "S" modes. (Remains in "A" mode.)	Does not work.
B	RW1	Focus aid is possible. AF does not work. No communication with flash.	Does not change to "P" and "S" modes. (Remains in "A" mode.)	No trouble can be detected.
C	CLK (Wide -> Tele)	Focus aid is possible. AF does not work. No communication with flash.	Does not change to "P" abd "S" modes. (Remains in "A" mode.)	In Wide -> Tele mode, lens moves but does not focus. In Tele -> Wide mode, lens does not move. Focus aid is possible.
D	SI/O (Tele -> Wide)	Focus aid is possible. AF does not work. No communication with flash.	Does not change to "P" and "S" modes. (Remains in "A" mode.)	In Tele -> Wide mode, lens moves but does not focus. In Wide -> Tele mode, lens does not move. Focus aid is possible.
E	RW2	No trouble can be detected.		Does not work.
F	VCC (relative distance)	No trouble can be detected.		Does not work.
G	GND	Focus aid is possible. AF does not work. No communication with flash.	Does not change to "P" and "S" modes. (Remains in "A" mode.)	Does not work.

	Phenomenon	Cause
I-1	Malfunction of LCD and LED displays at body side. This corresponds to the trouble in display at body side only. Find cause of trouble using each check flow when metering and AF accuracy operations are abnormal.	1. Poor contact of press contact (F). 2. Display FPC is defective. 3. Main FPC is defective. 4.


Check display using personal computer (adjustment program).
Normal
*Main FPC is defective.
Abnormal, or no communication is possible.
If press contact between main FPC and display FPC is not correctly connected, communication becomes impossible.
Remove front body.
Replace press contact connector in display FPC press contact (F) with new type.
*If only old type of connector is available, replace it with the one not used. See Note 1 below.
Normal
*Poor contact of press contact (F).
Abnormal
Replace display FPC with new one.
Normal
*Display FPC is defective.
Abnormal
*Main FPC is defective.

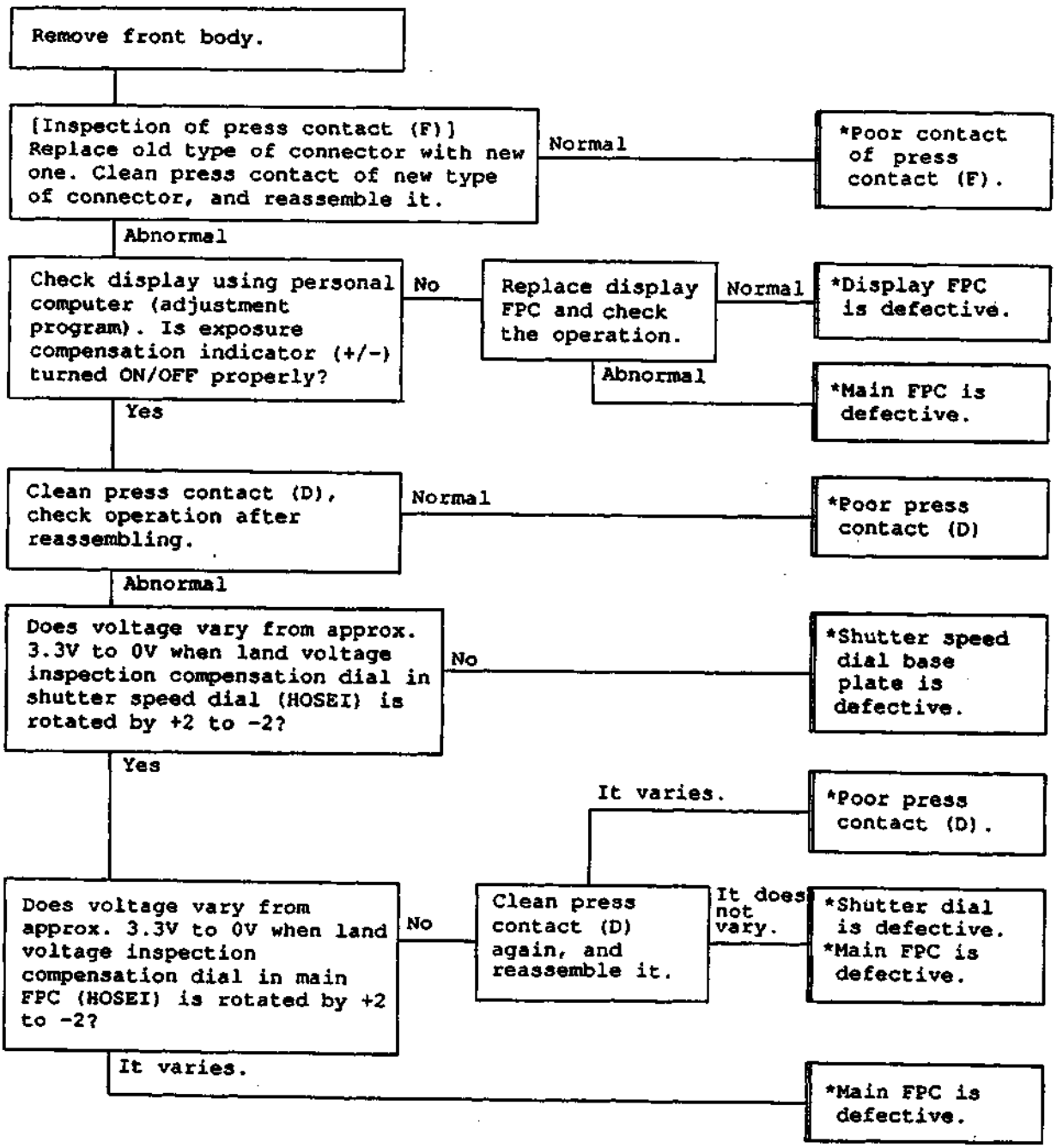
Note 1: Take special care for handling connector used in old type of display press contact for it is very sensitive. Replace old type of connector with new one as much as possible.

	Phenomenon	Cause
I-2	Malfunction of LED focus indicators. (No indicator appears, or indicators flicker.)	1. Poor contact of press contact (F) in display FPC. 2. Poor contact of AF connector. 3. AF base plate is defective. 4. Main FPC is defective.


Check AF indicators using personal computer (adjustment program).
Normal
*AF base plate is defective.
Abnormal
Remove bottom cover.
Clean AF connector, and reassemble.
Normal
*Poor contact of AF connector.
Abnormal
Remove front body.
Reassemble press contact (F) of display FPC. (Replace old type of connector with new one.)
Normal
*Poor press contact (F) of display FPC.
Abnormal
Replace display FPC with new one. Replace old connector for press contact with new one.
Normal
*Display FPC is defective.
Abnormal
*AF base plate
*Main FPC.

	Phenomenon	Cause
I-3	Malfunction of exposure compensation indicator (+/-). It does not light up. It remains lit It lights up but is unstable.	1. Poor contact of press contact (F). 2. Poor contact of press contact (D). 3. Shutter speed dial base plate is defective. 4. Display FPC is defective. 5. Main FPC is defective.

If LED lights up due to gap of exposure compensation dial at position 0, replace the dial.


Remove front body.
[Inspection of press contact (F)] Replace old type of connector with new one. Clean press contact of new type of connector, and reassemble it.
Normal
*Poor contact of press contact (F).
Abnormal
Check display using personal computer (adjustment program). Is exposure compensation indicator (+/-) turned ON/OFF properly?
No
Replace display FPC and check the operation.
Normal
*Display FPC is defective.
Abnormal
*Main FPC is defective.
Yes
Clean press contact (D), check operation after reassembling.
Normal
*Poor press contact (D)
Abnormal
Does voltage vary from approx. 3.3V to 0V when land voltage inspection compensation dial in shutter speed dial (HOSEI) is rotated by +2 to -2?
No
*Shutter speed dial base plate is defective.
Yes
It varies.
*Poor press contact (D).
Does voltage vary from approx. 3.3V to 0V when land voltage inspection compensation dial in main FPC (HOSEI) is rotated by +2 to -2?
No
Clean press contact (D) again, and reassemble it.
It does not vary.
*Shutter dial is defective.
*Main FPC is defective.
It varies.
*Main FPC is defective.

I-4	List of trouble due to poor press contact between main FPC and display FPC. Conditions: Lens; AF50mm f/1.4, with no viewfinder, and illuminator switch being ON. Replace old type of press contact with new one as much as possible.

Display at body side. LCD display *LCD display with no viewfinder mounted. *Illuminator LED display *AF indicator *Exposure compensation display *Flash ready-light display	Name of land of press contact. 1: LCD, 3V 2: SB.STBY1 3: DISPLAY. OFF 4: LCD.RST 5: LC.I/O2 6: LCD.CLK2 7: LCD.I/O2 8: LCD.5V 9: LCD.GND	

Phenomenon when each land at press contact becomes disconnected (open).

	LCD display	LED display	Illuminator	Shutter release	AF operation	Others
1: LCD.3V	Normal	No display appears.	Does not light up.	Normal	Normal	
2: SB.STBY1	Normal	Normal	Normal	Normal	Normal	Not applicable without viewfinder and flash.
3. DISPLAY OFF	Display does not go out when mirror moves up.	Display does not go out when mirror moves up.	Does not go out when mirror moves up.	Normal	Normal	
4: LCD.RST	No display appears.	No display appears.	Does not light up.	Normal	Normal	
5: LC.I/O2	No display appears.	No display appears.	Does not light up.	Normal	Normal	
6: LCD.CLK2	No display appears.	No display appears.	Does not light up.	Normal	Normal	
7: LCD.I/O2	Both LCD/LED and illuminator light up but unstable and flicker.			Normal	Normal	
8: LCD.5V	No display appears.	No display appears.	Does not light up.	Normal	Normal	
9: LCD.GND	No display appears.	No display appears.	Does not light up.	Normal	Normal	

*In case of short-circuit between each land of press contact and next land.						
	LCD display	LED display	Illuminator	Release	AF operation	Others
1: LCD.3V – SB.STBY1	Normal	Normal	Normal	Normal	Normal	Normal without viewfinder and flash.
2: SB.STBY1 – DISPLAY OFF	Normal prior to shutter release operation. After shutter release operation, mirror moves up and ready-light LED lights up.			Normal	Normal	
3: DISPLAY OFF – LCD.RST	Normal prior to shutter release operation. After shutter release operation, display and illuminator go out and shutter release operation become impossible.			Impossible	Normal	
4: LCD.RST – LC.I/02	No display appears.	No display appears.	Does not light up.	Impossible	Impossible	Power is applied and holds for 16 seconds.
5: LC.I/02 – LCD.CLK2	No display appears.	No display appears.	Does not light up.	Normal	Normal	
6: LCD.CLK2 – LCD.I/02	No display appears.	No display appears.	Does not light up.	Normal	Normal	
7: LCD.I/02 – LCD.5V	Both LCD and LED display light up. (All segments of LCD and LED light up.)			Normal	Normal	
8: LCD.5V – LCD.GND	No display appears.	No display appears.	Does not light up.	Impossible	Impossible	Current flows instantly when shutter prerelease switch is turned ON, but it does not hold for 16 seconds.

	Phenomenon	Cause
L-1	Flash does not fire when using sync terminal.	1. Shutter (sync contact) is defective. 2. Poor press contact (C). 3. Triac base plate is defective. 4. Main FPC is defective.

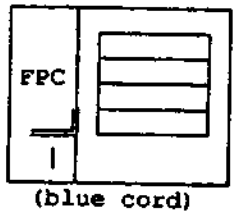
Does it fire when flash is mounted on accessory shoe of DP-20?

It fires. →
- *Sync terminal is defective.
- *Sync terminal contact spring is detached or contaminated.
- *Soldering of green cord of triac base plate is detached.

It does not fire.

Remove front cover.

[Inspection of sync contact of shutter]



(blue cord)

Measure terminal voltage of blue cord while setting shutter speed dial to "B".
Correct value:
3.3V (prior to shutter release operation)
0V (after shutter release operation)

Terminal voltage does not become 0V. →
- *Shutter is defective.

Terminal voltage becomes 0V after shutter release operation.

[Inspection of press contact (C)]
Clean press contact (C), and check to see if flash fires when flash is connected to sync terminal after reassembling.

Normal →
- *Poor contact of press contact (C).

Abnormal

a

a

[Inspection of triac base plate] Check to see if flash fires when yellow cord from triac base plate is short-circuited to 3.3V power line after connecting flash to sync terminal.

It does not fire. → *Triac base plate is defective.

It fires.

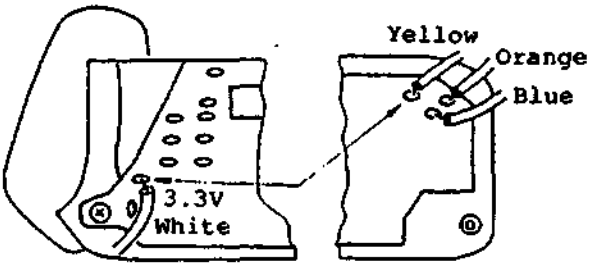
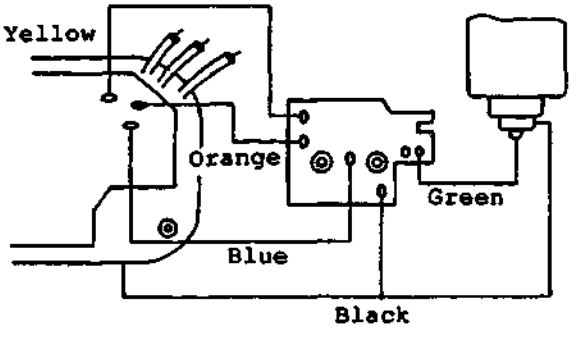


Fig. 1-1-1

*Main FPC is defective.

[Inspection of triac base plate] can be performed by attaching triac base plate (correct parts) externally as shown in the figure below and check flash firing.



Make sure that there are old and new combinations in main FPC and triac base plate. Refer to Technical Information bulletin (Ref. No.: F4-890026).	
If you mounted old and new combinations reversely (without making any corrective measures), the following trouble occurs.	
1. Old FPC + New triac base pate	2. New FPC + Old triac base plate
Current flow display (250mA) does not appear when shutter prerelease switch is turned ON. Shutter can not be released.	Rear curtain sync flash even in T (time) mode (with SB-24 mounted.)

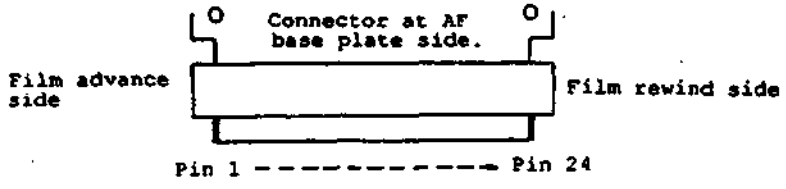
Z-1	List of trouble due to disconnection of each pin of 24-pin AF connector. Conditions: DP-20 and AF50 F/1.4 lens are mounted.

No.	Land name	Phenomenon
1.	AF-GND:	*No trouble can be found.
2.	AF-A5V:	*In AF-S and M modes, exposure and AF indicators do not appear. Shutter release operation is impossible. *All are in "A" mode except AF-C and exposure mode "M". AF indicator does not appear. Shutter release operation is possible. *AF filter change over operation is repeated slowly for 16 seconds after auto film loading.
3.	AF-ABLE:	*In AF-M mode and focus aid operations are possible. Shutter can be released. *In AF-S and C modes, lens vibrates slightly and goes in focus. Shutter release operation is possible. *AF filter change over operation is done little by little and stops. *Exposure display is normal.
4.	RLS-ABLE:	*In AF-M mode, focus aid and shutter release operations are possible. *In AF-S mode, Shutter can be released even when subject is not in focus. (Sometimes shutter can not be released.) *AF-C mode is normal.
5.	AF-RESET:	*Exposure display is normal. *All are in "A" mode except exposure mode "M". *Auto film loading is impossible, shutter cannot be released. (Shutter can be released when film is not loaded.) (During shooting, shutter release and film rewind operations become impossible.)
6.	AF-R.SW Sig:	*No trouble can be found.
7.	AF-H.Sing:	*In AF-M mode, focus aid and shutter release operations are possible. *In AF-S mode, no AF indicator appears and shutter release operation is impossible. *In AF-C mode, no AF indicator appears and shutter release operation is possible. (Either one of focus indicators lights up during shutter release operation.)
8.	AF.R.Sig:	*No trouble can be found.
9.	FD-1:	*AF filter change over operation does not work after auto film loading. *Others are in normal.
10.	AF-D.GND:	No trouble can be found.
	L.E.A.:	*All are in "A" mode except exposure mode "M". *AF indicator does not appear. *In AF-M mode, shutter release operation are not possible. *In AF-S, C mode, shutter release operation are possible. *No auto film loading is possible.
12.	FD.O:	*After auto film loading, film rewind motor rotation does not stop.
13.	CTL3:	*AF indicator does not appear. *Lens does not operate. *All are in "A" mode except exposure mode "M". *Auto film loading is impossible. *Shutter cannot be released. (Shutter can be released when film is not loaded.)

14.	FILTER:	*No trouble can be found.
15.	LD:	*No trouble can be found.
16.	AF-D5V:	*No trouble can be found.
17.	DC:	*All are in "A" mode except exposure mode "M". (Others are in normal.)
18.	AF-3V:	*In AF-M mode, focus aid and shutter release operation are possible. *In AF-S, C modes, hunting occurs at in focus position. (Sometimes shutter release operation is possible.) *Volume of scanning is insufficient.
19.	AF-12V:	*AF indicator remains to show "X" and does not change. *In AF-M mode, shutter can be released. *In AF-S mode, shutter cannot be released. *In AF-C mode, there is time lag from shutter release switch is ON until shutter is released. Shutter cannot be released by pressing shutter release button slightly.
20.	AF-CLK:	*AF indicator does not appear. *Lens does not operate. *Shutter can be released. *All are in "A" mode except exposure mode "M".. *Film is loaded, auto film loading is impossible. Shutter cannot be released. (During shooting, above phenomenon occurs and film rewind becomes impossible.)
21.	CTL1:	*All are in "A" mode except exposure model "M". *No other trouble can be found.
22.	AF-I/O:	*AF indicator does not appear. *Lens does not operate. Shutter can be released. All are in "A" mode except exposure mode "M". *Film is loaded, auto film loading is impossible. Shutter can be released.
23.	CTL2:	*No trouble can be found.
24.	(NC):	

* When either one of following pins is disconnected, the trouble can be detected through communication inspection to front body.
Pin 2, 5, 13, 20, or 22

* In AF connector at AF base plate side in some of the initially produced bodies, double coated adhesive tape has been used as an adhesive agent. In this body , the connector may become disconnected because the tape protrudes out of the connector.
Fully clean the connector using alcohol, and insert in the 24-pin connector at main FPC side.
If double coated adhesive tape is found in 24-pin connector at main FPC side, replace the 24-pin connector.



Z-2	List of trouble due to disconnection of cords around film advance base plate.

1.	Charging switch (gray cord) remains ON or short-circuit to body.
Phenomenon	It performs continuous mechanical charging when shutter release button is pressed lightly.
2.	Charging switch is disconnected or not turned ON.
Phenomenon	Camera back opened: It performs continuous mechanical charging when shutter is released. Camera back closed: Mirror does not move smoothly during mirror moving up, and sequence error display appears after mirror moves down.
3.	Film advance completion switch (white cord) remains ON or short-circuit to body.
Phenomenon	External alert LED lights up when shutter release button is pressed lightly.
4.	Film advance completion switch is disconnected or is not turned ON.
Phenomenon	(Film loaded): Spool motor does not rotate. (Auto film loading is impossible.) In mechanical charging only, blank exposures are repeated.
5.	Mechanical charging switch (gray cord) and P.I cord (pink cord) are short-circuited.
Phenomenon 1	(Film not loaded, or camera back opened or closed): (1) Mechanical charging is performed little by little when shutter is released. (2) Spool motor does not rotate.
Phenomenon 2	(Film loaded): (1) Auto film loading is impossible, spool motor alone rotates and advances film when shutter release button is pressed lightly, alert LED lights up at end of roll and spool motor stops. (2) Auto film rewinding is impossible.
6.	Either one of P.I cords (green, blue, pink) is detached. Either one of P.I cords (green, blue, pink) is short-circuited to each other. Either one of P.I cords (green, blue, pink) is short-circuited to GND.
Phenomenon	Cs mode becomes CH mode. Other operations are normal.

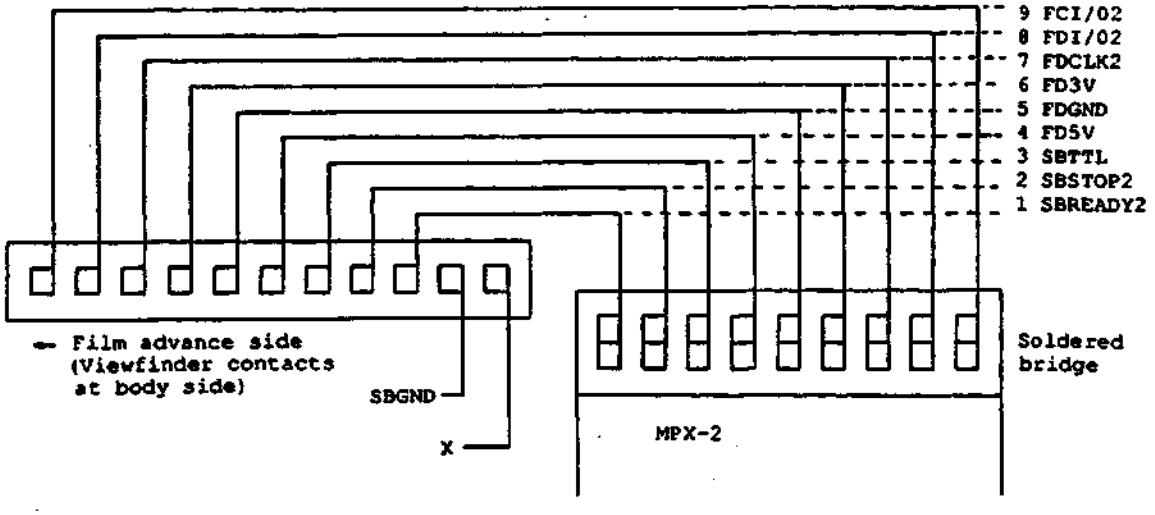
2-3	List of trouble due to poor soldering between main FPC and nine soldered portions of DB/FD/DX FPCs. Conditions: DP-20, SB-24, and AF zoom lens are mounted.

List of trouble when each land of nine soldered bridges is disconnected (open).

	Body side	Viewfinder side	Flash side	Other
Inspection items	LCD/LED display Display illuminator Shutter release AF operation Shutter speed	LCD display Display illuminator	Communication (zoom, aperture, film speed) Firing Light output measurement	

Check the cause of trouble carefully before starting repair procedures because the cause of trouble may be found in body, viewfinder, or flash.
*List of trouble was made after having made inspection of each item of above items.
*No description was made for the items in which no trouble was found. (Blank)
("No trouble can be found" does not mean that operation is normal.)
For example, no communication is made between body and flash in the list of trouble, you can confirm it by checking that LCD panel of flash (SB-24) does not change when operating film speed dial in body, zooming lens, or controlling aperture.

Relation between nine portions of soldered bridge and viewfinder contacts at body side.



Land name	Phenomenon at body side	Phenomenon at viewfinder side	Phenomenon at flash side
SB READY2	Flash ready-light does not light up. Does not change over to sync shutter speed		No communication between flash and body.
SB STOP2			No communication between flash and body.Flash fires fully in TTL mode.
SB TTL			No communication between flash and body. TTL-BL is impossible.
FD 5V	Flash ready-light does not light up. Does not change over to sync shutter speed.	No display appears.	No communication between flash and body. Flash fires fully in TTL mode.
FD GND		No display appears.	
FD 3V	Shutter cannot be released. No LCD display appears. Illuminator does not light up. AF indicators and operation are normal.	No display appears. Illuminator does not light up.	No communication between flash and body.
FD CLK	LCD display is stable. FD detection indicators appear alternately.	No display appears. Illuminator does not light up.	
FD I/O		Metering mode does not change over.	
FC I/O		No display appears. Illuminator does not light up.	